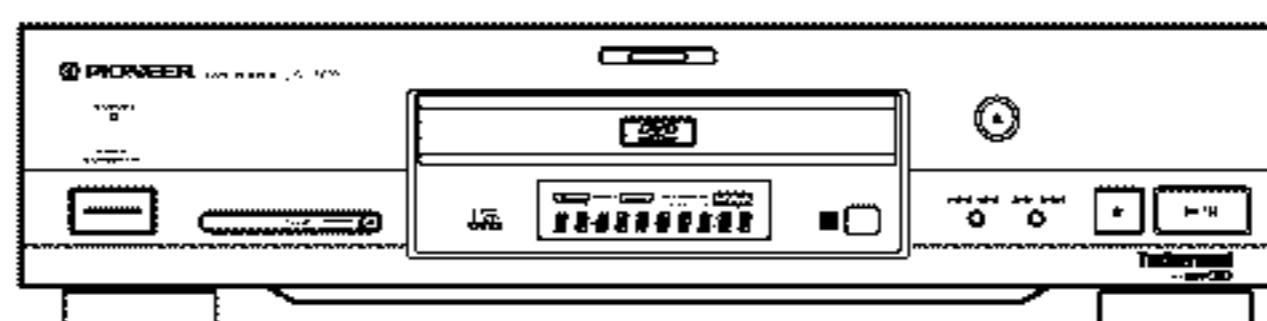


# Service Manual



DVD PLAYER

# DV-505

MC-Service

**THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).**

Type	Model	Power Requirement	The voltage can be converted by the following method.	Regional restriction codes (region number)
	DV-505			
WY	O	AC 220 – 240V	_____	2
WY/RD	O	AC 220 – 240V	_____	4
WYW/SP	O	AC 220 – 240V	_____	2
RD/RC	O	AC 110 – 127/220 – 240V	Automatic select	3
RAM	O	AC 110 – 127/220 – 240V	Automatic select	6
RL	O	AC 110 – 127/220 – 240V	Automatic select	3

- Refer to the service guide RRV1896 for DV-505.  
IC information is described in the service guide.

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6. ADJUSTMENT .....	38		

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# 1. SAFETY INFORMATION

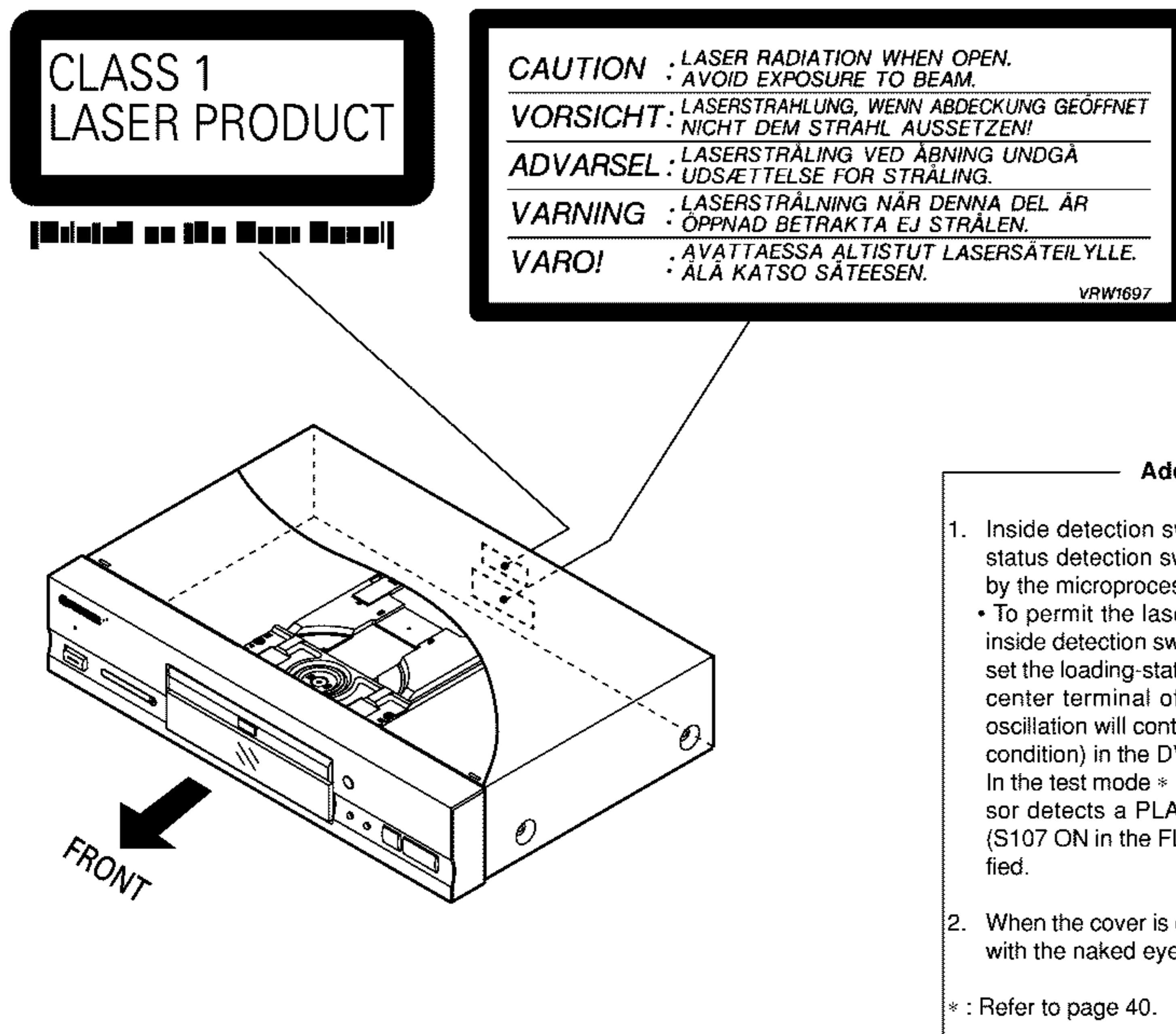
This service manual is intended for qualified service technicians ; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.

Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

— IMPORTANT —  
 THIS PIONNER APPARATUS CONTAINS  
 LASER OF CLASS 1.  
 SERVICING OPERATION OF THE APPARATUS  
 SHOULD BE DONE BY A SPECIALLY  
 INSTRUCTED PERSON.

— LASER DIODE CHARACTERISTICS —  
 MAXIMUM OUTPUT POWER : 7 mw  
 WAVELENGTH : 650 nm

## LABEL CHECK

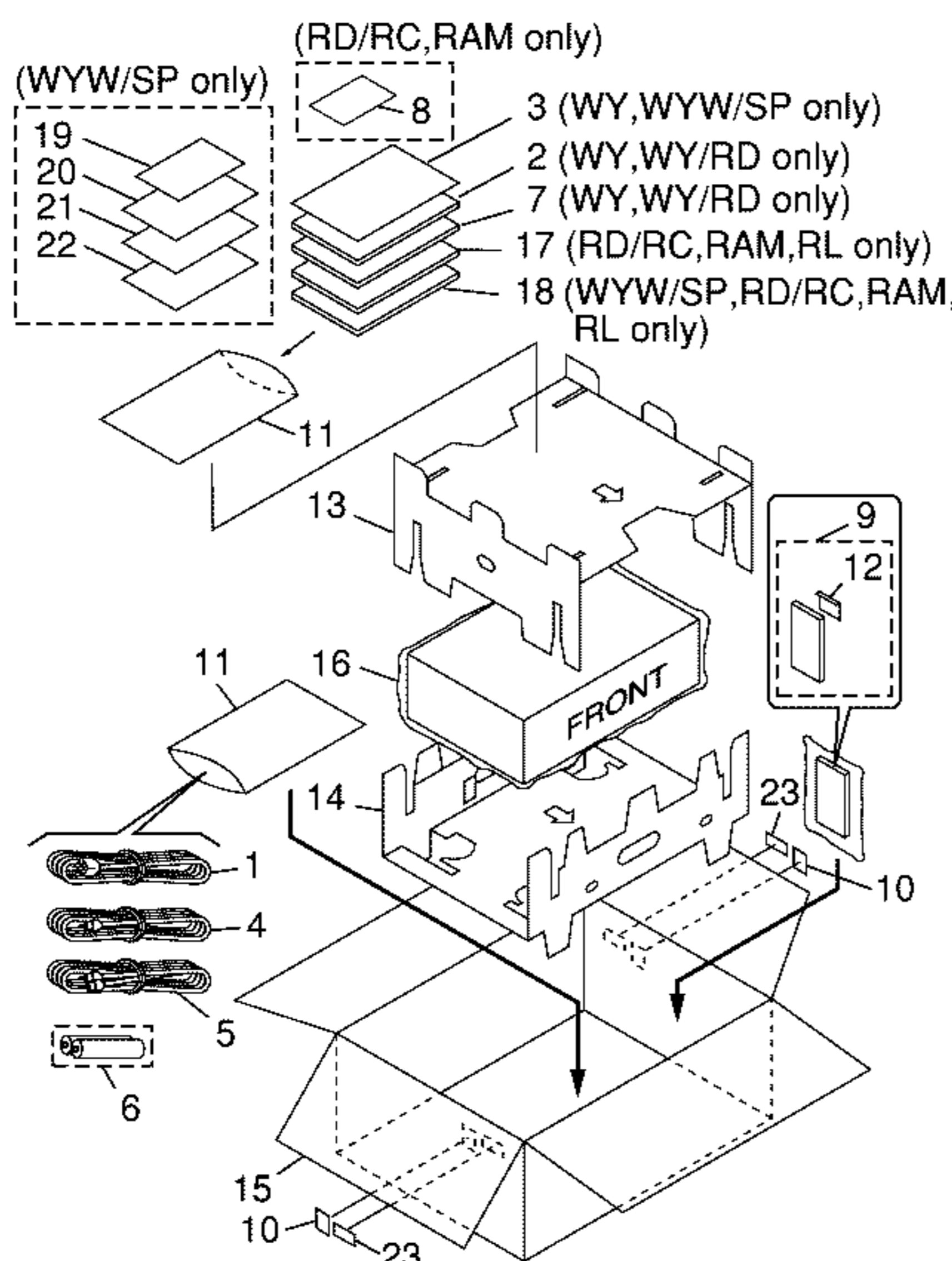


## 2. EXPLODED VIEWS AND PARTS LIST

NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The  $\triangle$  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Screws adjacent to  $\blacktriangledown$  mark on the product are used for disassembly.

### 2.1 PACKING



#### (1) PACKING PARTS LIST

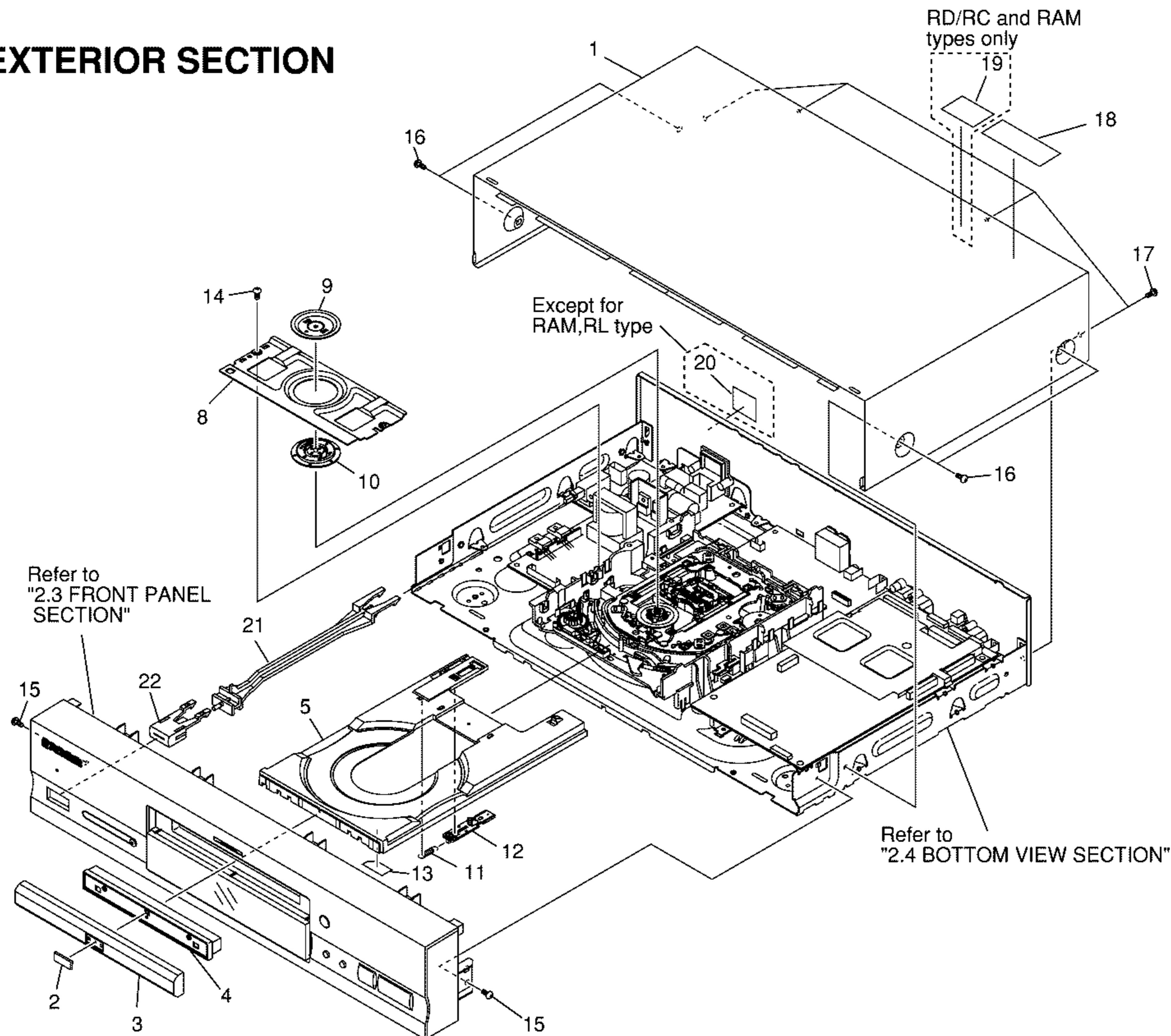
Mark	No.	Description	Part No.
$\triangle$	1	Power Cord	See Contrast table (2)
	2	Operating Instructions	See Contrast table (2)
	3	(English/French/German/Italian))	
NSP	3	Warranty Card	See Contrast table (2)
	4	Audio Cord (L=1.5m)	VDE1033
	5	Video Cord (L=1.5m)	VDE1048
NSP	6	Dry Cell Battery (R6P, AA)	VEM-013
	7	Operating Instructions	See Contrast table (2)
	8	(Spanish/Portuguese/Dutch/Swedish)	
	9	Card	See Contrast table (2)
	9	Remote Control Unit	VXX2540
	10	(CU-DV008)	
	10	Label (Region)	See Contrast table (2)
	11	Polyethylene Bag	Z21-038
	12	Battery Cover	VNK3703
	13	Protector A	VHB1060
	14	Protector B	VHB1061
	15	Packing Case	See Contrast table (2)
	16	Mirror Mat Sheet	Z23-007
	17	Operating Instructions	See Contrast table (2)
	18	(English)	
	18	Operating Instructions	See Contrast table (2)
NSP	19	Caution (EW)	See Contrast table (2)
NSP	20	Card (Information Center Tel. No.)	See Contrast table (2)
NSP	21	Card (Service Tel. List)	See Contrast table (2)
NSP	22	Card (Connection)	See Contrast table (2)
NSP	23	Label (Model Type)	See Contrast table (2)

#### (2) CONTRAST TABLE

WY, WY/RD, WYW/SP, RD/RC, RAM and RL types are constructed the same except for the following :

Mark	No.	Symbol and Description	Part No.						Remarks
			WY type	WY/RD type	WYW/SP type	RD/RC type	RAM type	RL type	
$\triangle$	1	Power Cord	ADG1154	ADG1127	ADG1127	ADG7003	ADG7017	ADG1154	
	2	Operating Instructions	VRE1068	VRE1068	Not used	Not used	Not used	Not used	
	3	(English/French/German/Italian)							
	7	Warranty Card	ARY7008	Not used	ARY7008	Not used	Not used	Not used	
	7	Operating Instructions	VRF1042	VRF1042	Not used	Not used	Not used	Not used	
	8	(Spanish/Portuguese/Dutch/Swedish)							
	10	Card	Not used	Not used	Not used	VRY1110	VRY1109	Not used	
	15	Label (Region)	VRW1701	VRW1705	VRW1701	VRW1702	VRW1702	VRW1702	
	17	Packing Case	VHG1718	VHG1718	VHG1736	VHG1717	VHG1743	VHG1717	
	17	Operating Instructions (English)	Not used	Not used	Not used	VRB1192	VRB1192	VRB1192	
NSP	18	Operating Instructions (Spanish)	Not used	Not used	Not used	VRC1065	Not used	Not used	
	18	Operating Instructions (Trad-chinese)	Not used	Not used	Not used	VRC1063	Not used	VRC1063	
	18	Operating Instructions (Simp-chinese)	Not used	Not used	Not used	VRC1061	Not used	Not used	
	19	Caution (EW)	Not used	Not used	Not used	VRM1027	Not used	Not used	
	20	Card (Information Center Tel. No.)	Not used	Not used	Not used	VRR1023	Not used	Not used	
NSP	21	Card (Service Tel. List)	Not used	Not used	Not used	VRR1034	Not used	Not used	
NSP	22	Card (Connection)	Not used	Not used	VRR1033	Not used	Not used	Not used	
	23	Label (Model Type)	Not used	VRW1713	Not used	VRW1710	Not used	Not used	

## 2.2 EXTERIOR SECTION



## (1) EXTERIOR SECTION PARTS LIST

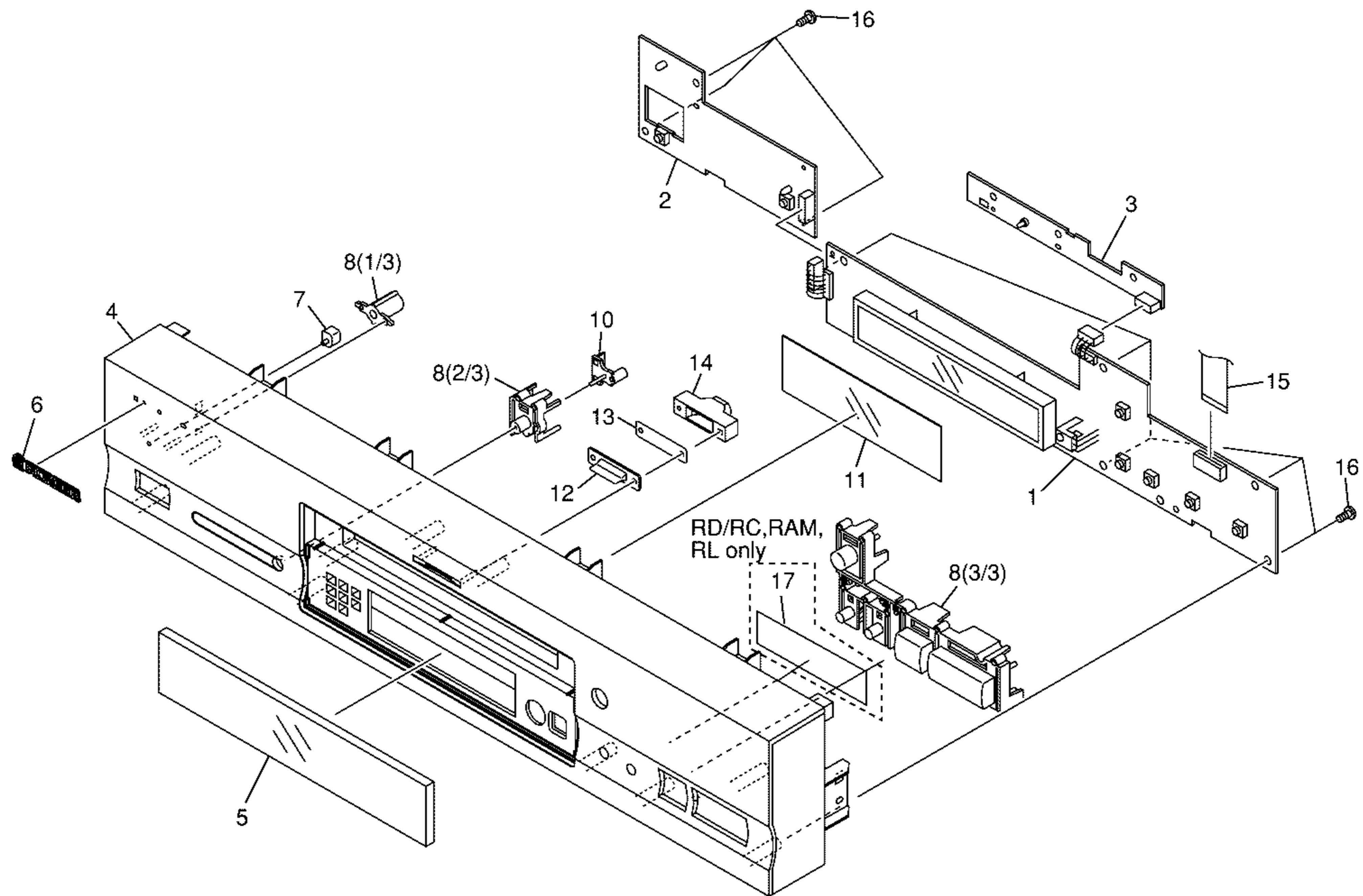
Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
1	Bonnet Case S	See Contrast table (2)		12	Tray Stopper	VNL1739	
2	DVD Plate	VAM1075		13	Tray Label	VRW1628	
3	Tray Panel Plate	See Contrast table (2)		14	Screw	BPZ26P080FZK	
4	Tray Panel	VNK4158		15	Screw	IBZ30P080FMC	
5	Tray	VNL1731		16	Screw	See Contrast table (2)	
6	.....			17	Screw	BBZ30P080FMC	
7	.....			18	Caution Label	VRW1697	
8	Bridge	VNE2069		NSP	19	Caution Label (F)	See Contrast table (2)
9	Clamper Plate	VNE2068		20	Label (Region)	See Contrast table (2)	
10	Clamper	VNL1738		21	Power Button Joint	VNK4179	
11	Tray Stopper Spring	VBH1277		22	Power Button	See Contrast table (2)	

## (2) CONTRAST TABLE

WY, WY/RD, WYW/SP, RD/RC, RAM and RL types are constructed the same except for the following :

Mark	No.	Symbol and Description	Part No.						Remarks
			WY type	WY/RD type	WYW/SP type	RD/RC type	RAM type	RL type	
NSP	1	Bonnet Case S	VXX2566	VXX2566	VXX2566	VXX2539	VXX2539	VXX2539	
	3	Tray Panel Plate	VNK4094	VNK4094	VNK4094	VNK4093	VNK4093	VNK4093	
	16	Screw	BCZ40P060FZK	BCZ40P060FZK	BCZ40P060FZK	BCZ40P060FNI	BCZ40P060FNI	BCZ40P060FNI	
	19	Caution Label (F)	Not used	Not used	Not used	VRW-328	VRW-328	Not used	
	20	Label (Region)	VRW1700	VRW1704	VRW1700	VRW1703	Not used	Not used	
	22	Power Button	VNK4184	VNK4184	VNK4184	VNK4159	VNK4159	VNK4159	

## 2.3 FRONT PANEL SECTION



### (1) FRONT PANEL SECTION PARTS LIST

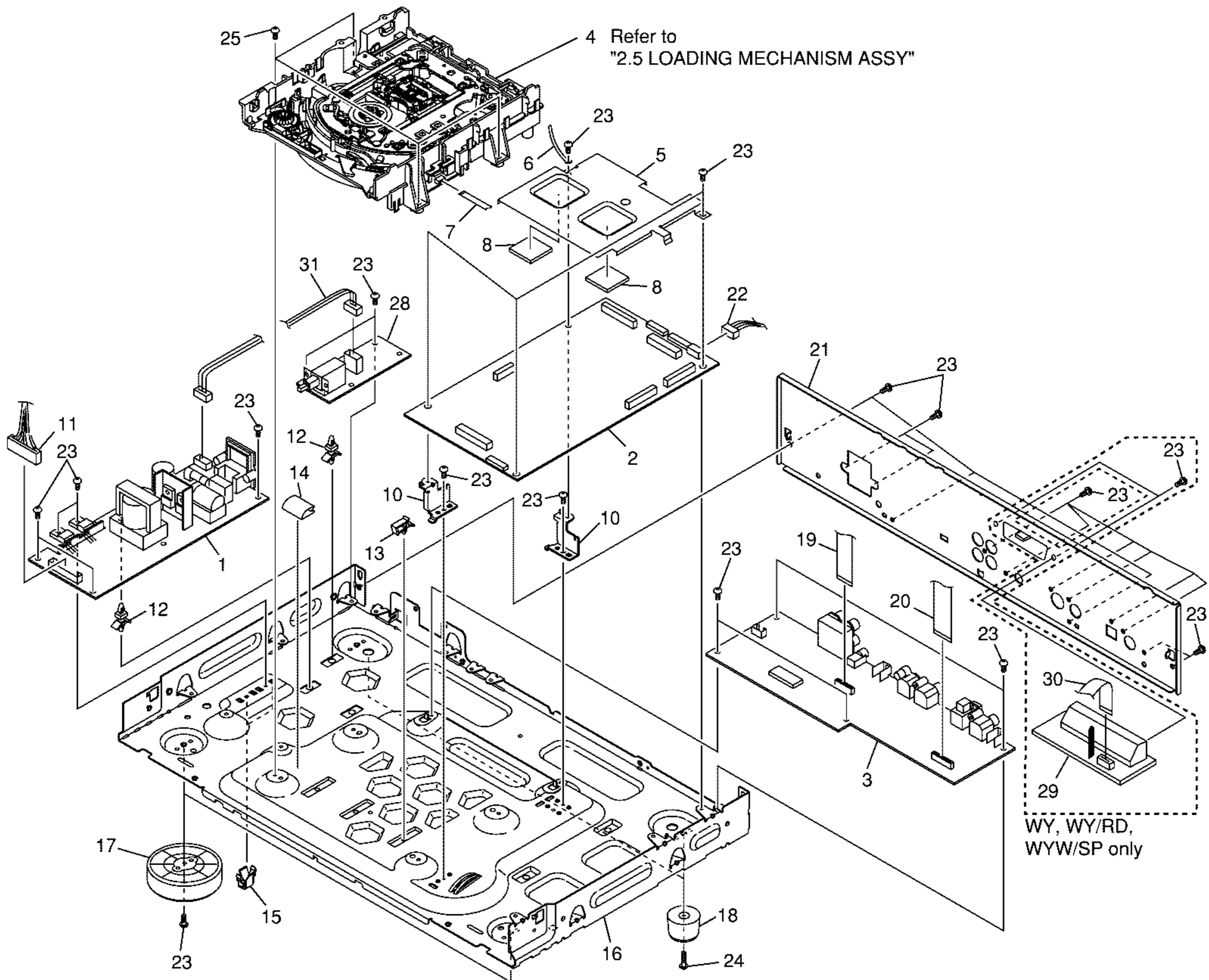
Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
NSP	1	FLKB Assy	See Contrast table (2)		11	FL Filter	VEC1643
NSP	2	PWSB Assy	See Contrast table (2)		12	Illumination Lens	VNK4168
NSP	3	DILB Assy	VWG1881		13	Illumination Filter	VEC1950
	4	Front Panel	See Contrast table (2)		14	Illumination Holder	VNK4098
	5	FL Lens	See Contrast table (2)		15	Flexible Cable (14P) (FLKB CN101 – DVDM CN105)	VDA1646
	6	Name Plate	See Contrast table (2)		16	Screw	BBZ30P080FMC
	7	LED Lens	PNW2019	NSP	17	Getter	See Contrast table (2)
	8	Main Key	See Contrast table (2)				
	9	.....					
	10	PLAY Lens	RNK2232				

### (2) CONTRAST TABLE

WY, WY/RD, WYW/SP, RD/RC, RAM and RL types are constructed the same except for the following :

Mark	No.	Symbol and Description	Part No.						Remarks
			WY type	WY/RD type	WYW/SP type	RD/RC type	RAM type	RL type	
NSP	1	FLKB Assy	VWG1876	VWG1876	VWG1876	VWG1940	VWG1934	VWG1875	
	2	PWSB Assy	VWG1937	VWG1937	VWG1937	VWG1880	VWG1880	VWG1880	
	4	Front Panel	VNK4206	VNK4206	VNK4206	VNK4205	VNK4205	VNK4205	
	5	FL Lens	VNK4149	VNK4149	VNK4149	VNK4099	VNK4099	VNK4099	
	6	Name Plate	VAM1073	VAM1073	VAM1073	VAM1067	VAM1067	VAM1067	
NSP	8	Main Key	VNK4096	VNK4096	VNK4096	VNK4095	VNK4095	VNK4095	
	17	Getter	Not used	Not used	Not used	VRW1692	VRW1692	VRW1692	

## 2.4 BOTTOM VIEW SECTION



MC-Service

**(1) BOTTOM VIEW SECTION PARTS LIST**

<b>Mark</b>	<b>No.</b>	<b>Description</b>	<b>Part No.</b>	<b>Mark</b>	<b>No.</b>	<b>Description</b>	<b>Part No.</b>
NSP	1	POWER SUPPLY Assy	VWR1285	NSP	16	Chassis	VNA1876
	2	DVDM Assy	VWS1326		17	Insulator	PNW2766
	3	AVJB Assy	See Contrast table (2)		18	Insulator Assy	VXA1680
	4	Loading Mechanism Assy	VWT1147		19	Flexible Cable (14P) (AVJB CN191 – DVDM CN803)	VDA1646
	5	Heat Sink	VNE2134				
NSP	6	Cord Stopper	ZCB-069Z	NSP	20	Flexible Cable (17P) (AVJB CN901 – DVDM CN802)	VDA1650
	7	Flexible Cable (12P) (LOSB CN301 – DVDM CN107)	VDA1648		21	Rear Panel	See Contrast table (2)
	8	Radiation Seat	VEB1282		22	Housing Assy (4P) (DVDM CN801 – AVJB CN301)	VKP2157
	9	.....			23	Screw	BBZ30P080FMC
NSP	10	PCB Holder	VNE2122		24	Screw	BBZ30P180FMC
	11	Housing Assy (14P) (POWER SUPPLY CN201 – DVDM CN101)	VKP2161		25	Screw	BBZ30P100FMC
NSP	12	PCB Holder	PNW2100		26	.....	
	13	Clamp	DEC2007		27	.....	
	14	Shell Clip	DEC1184		28	MSWB Assy	VWG1882
	15	Guard	VNK4100		29	SCCB Assy	See Contrast table (2)
NSP	31	Housing Assy (2P) (POWER SUPPLY CN102 – MSWB CN10)	VKP2160		30	Flexible Cable (8P) (SCCB CN100 – AVJB CN19)	See Contrast table (2)

**(2) CONTRAST TABLE**

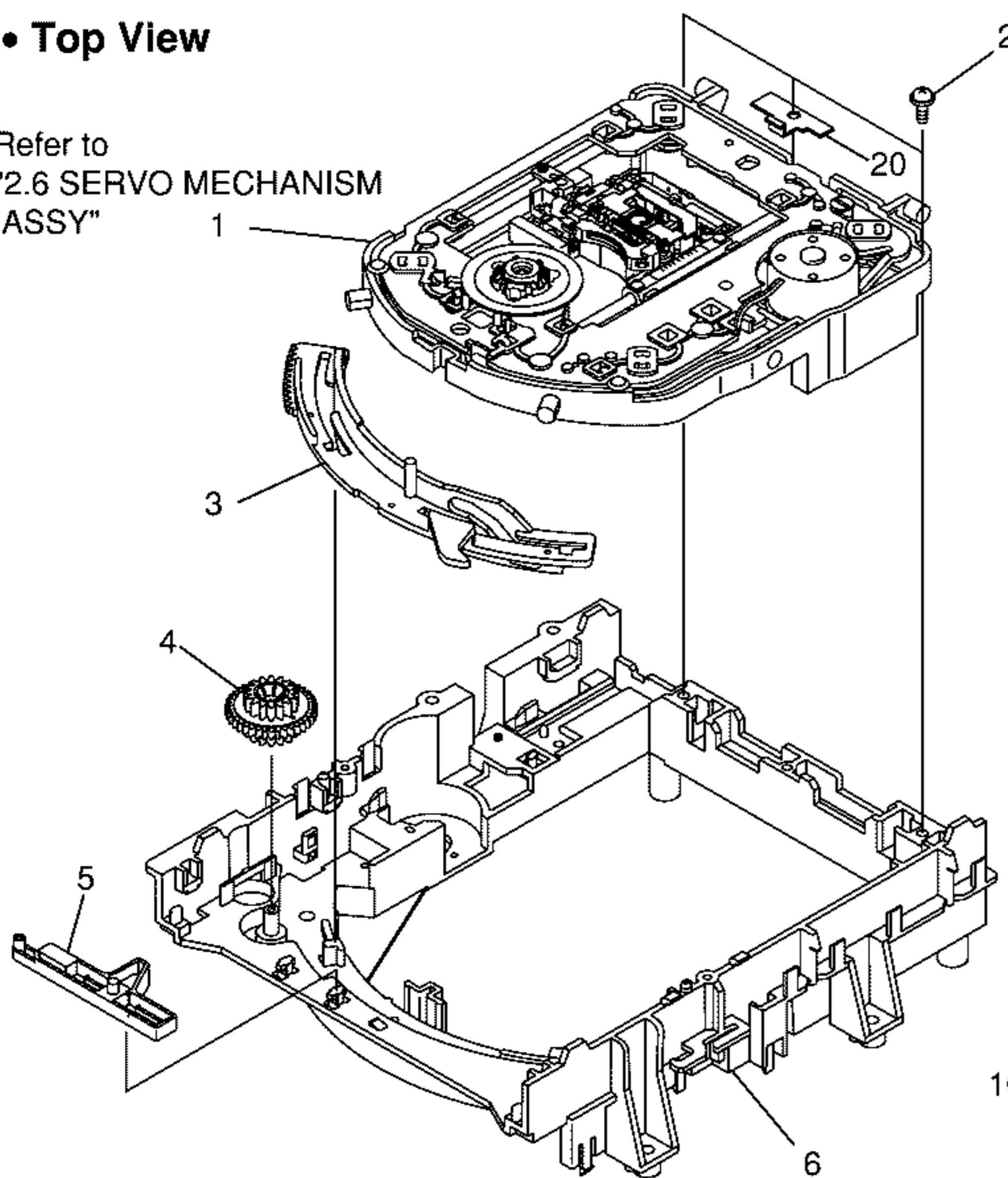
WY, WY/RD, WYW/SP, RD/RC, RAM and RL types are constructed the same except for the following :

<b>Mark</b>	<b>No.</b>	<b>Symbol and Description</b>	<b>Part No.</b>						<b>Remarks</b>
			<b>WY type</b>	<b>WY/RD type</b>	<b>WYW/SP type</b>	<b>RD/RC type</b>	<b>RAM type</b>	<b>RL type</b>	
	3 21 29 30	AVJB Assy Rear Panel SCCB Assy Flexible Cable (8P)	VWV1575 VNA1905 VWV1577 VDA1651	VWV1575 VNA1905 VWV1577 VDA1651	VWV1575 VNA1905 VWV1577 VDA1651	VWV1574 VNA1953 Not used Not used	VWV1574 VNA1906 Not used Not used	VWV1574 VNA1904 Not used Not used	

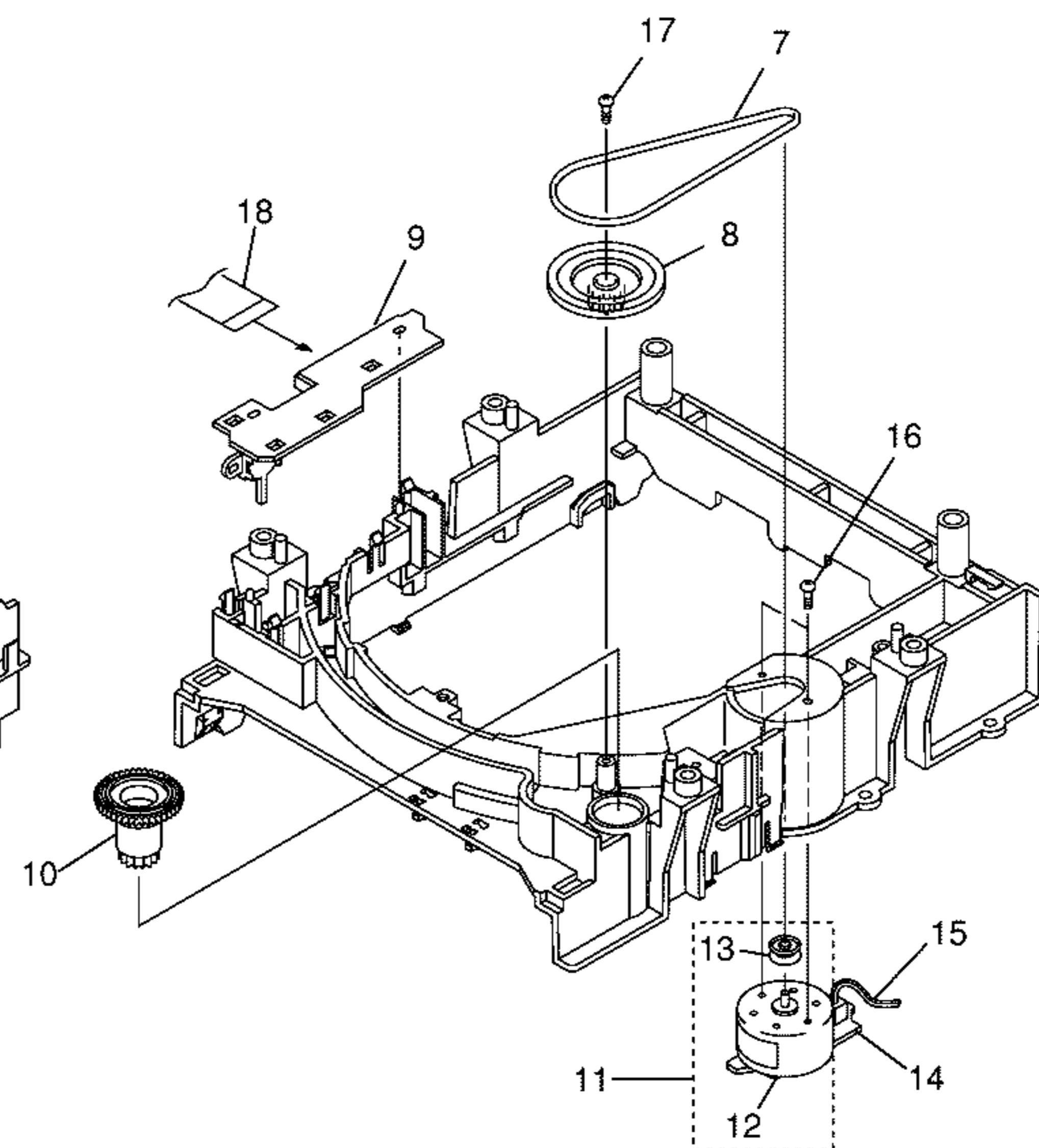
## 2.5 LOADING MECHANISM ASSY

### • Top View

Refer to  
"2.6 SERVO MECHANISM  
ASSY"



### • Bottom View

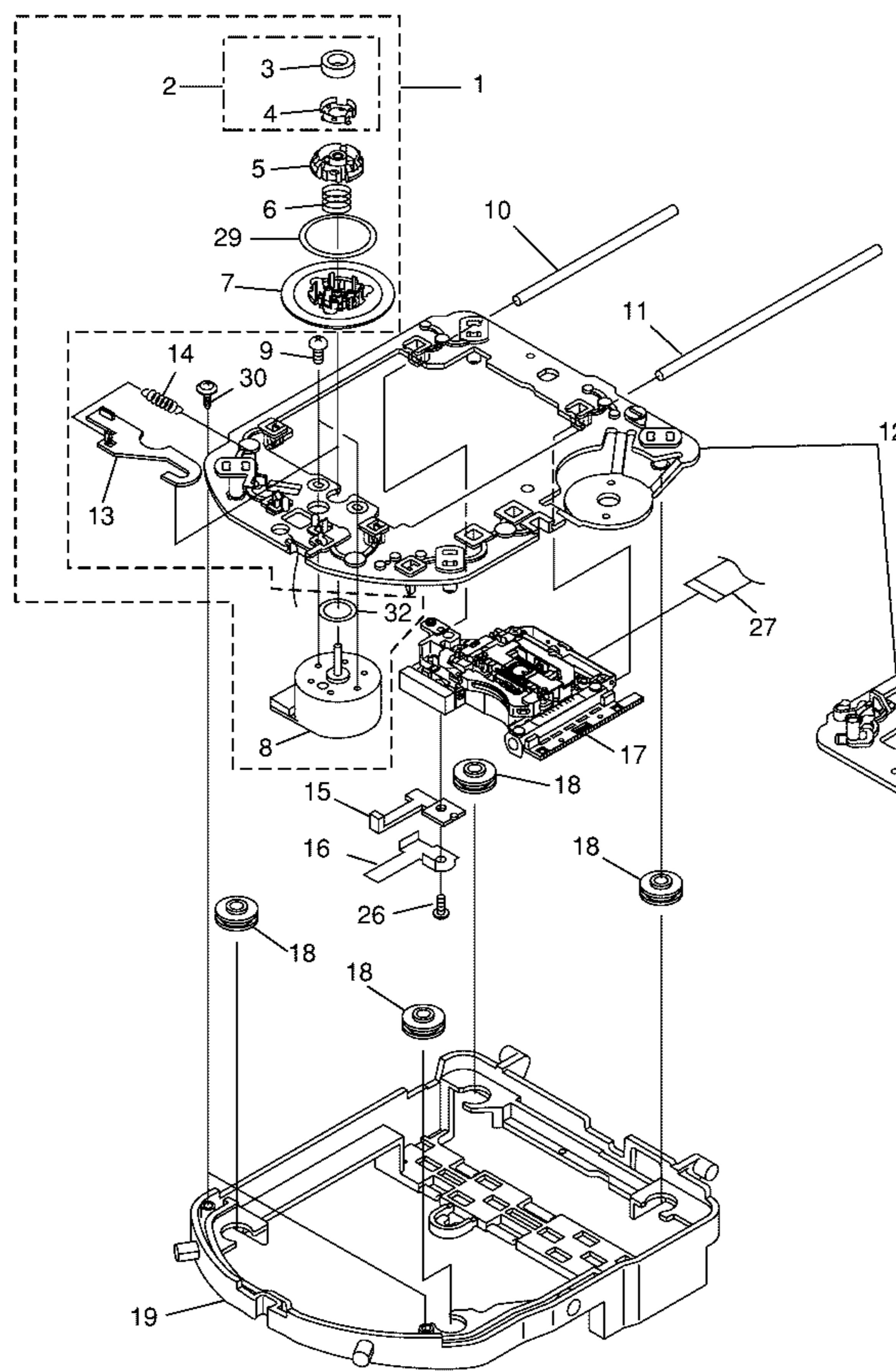


### ● LOADING MECHANISM ASSY PARTS LIST

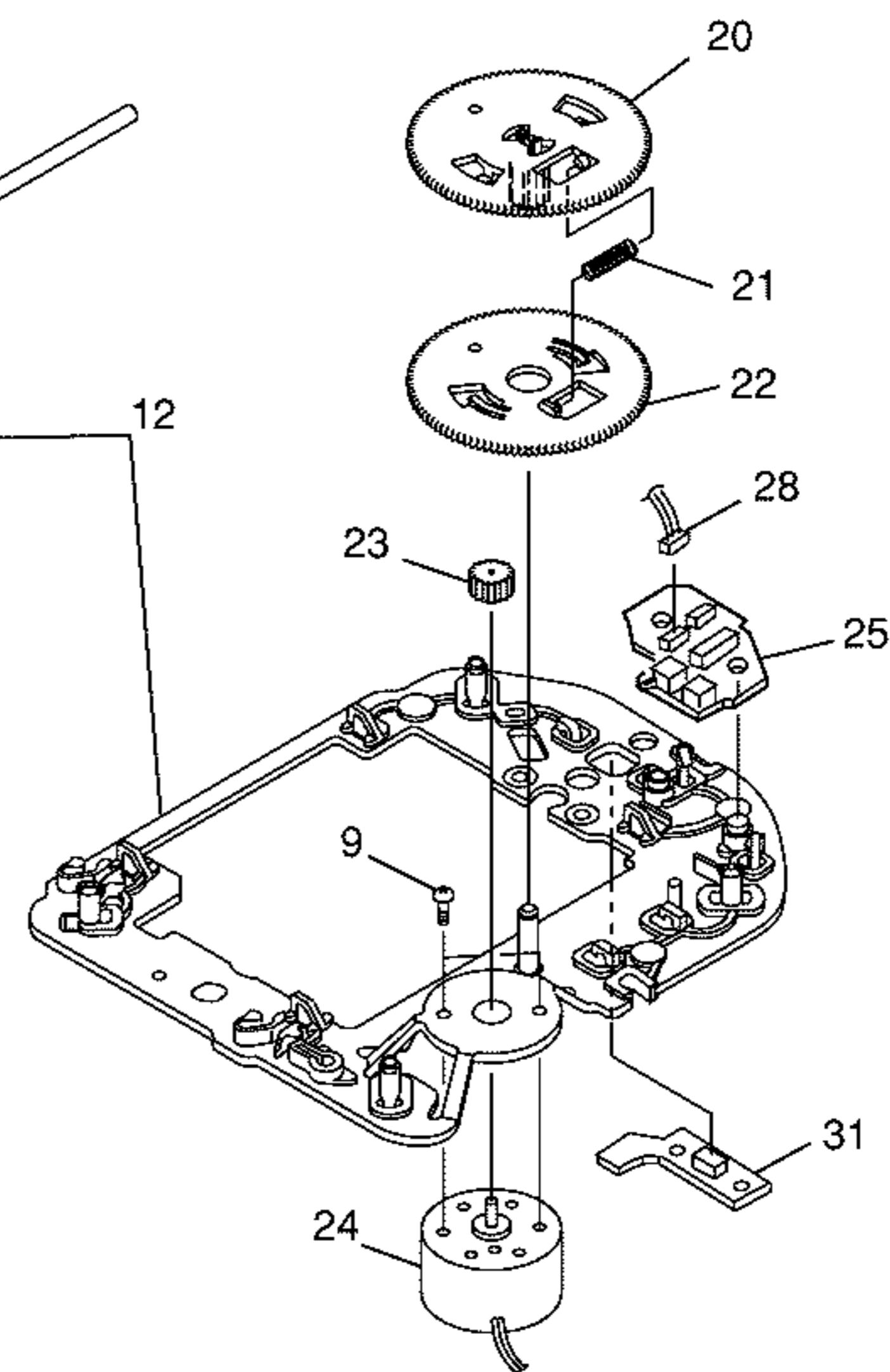
<b>Mark</b>	<b>No.</b>	<b>Description</b>	<b>Part No.</b>	<b>Mark</b>	<b>No.</b>	<b>Description</b>	<b>Part No.</b>
NSP	1	Servo Mechanism Assy-S	VXX2538	NSP	11	Loading Motor Assy	VXX2505
	2	Screw	DBA1006		12	DC Motor	PXM1027
	3	Drive Cam	VNL1736		13	Motor Pulley	PNW1634
	4	Drive Gear	VNL1735		14	LOMB Assy	VWG1886
	5	Lock Plate	VNL1737		15	Connector Assy (2P) (LOMB CN401 – LOSB CN303)	PG02KK-E35
	6	Loading Base	VNL1730		16	Screw	VBA1055
	7	Rubber Belt	VEB1260		17	Screw	Z39-019
	8	Gear Pulley	VNL1733		18	Flexible Cable (8P) (LOSB CN302 – INSB CN202)	VDA1649
	9	LOSB Assy	VWG1885		19	.....	
	10	Loading Gear	VNL1734		20	Stopper	DNH2076

## 2.6 SERVO MECHANISM ASSY

• Top View



• Bottom View



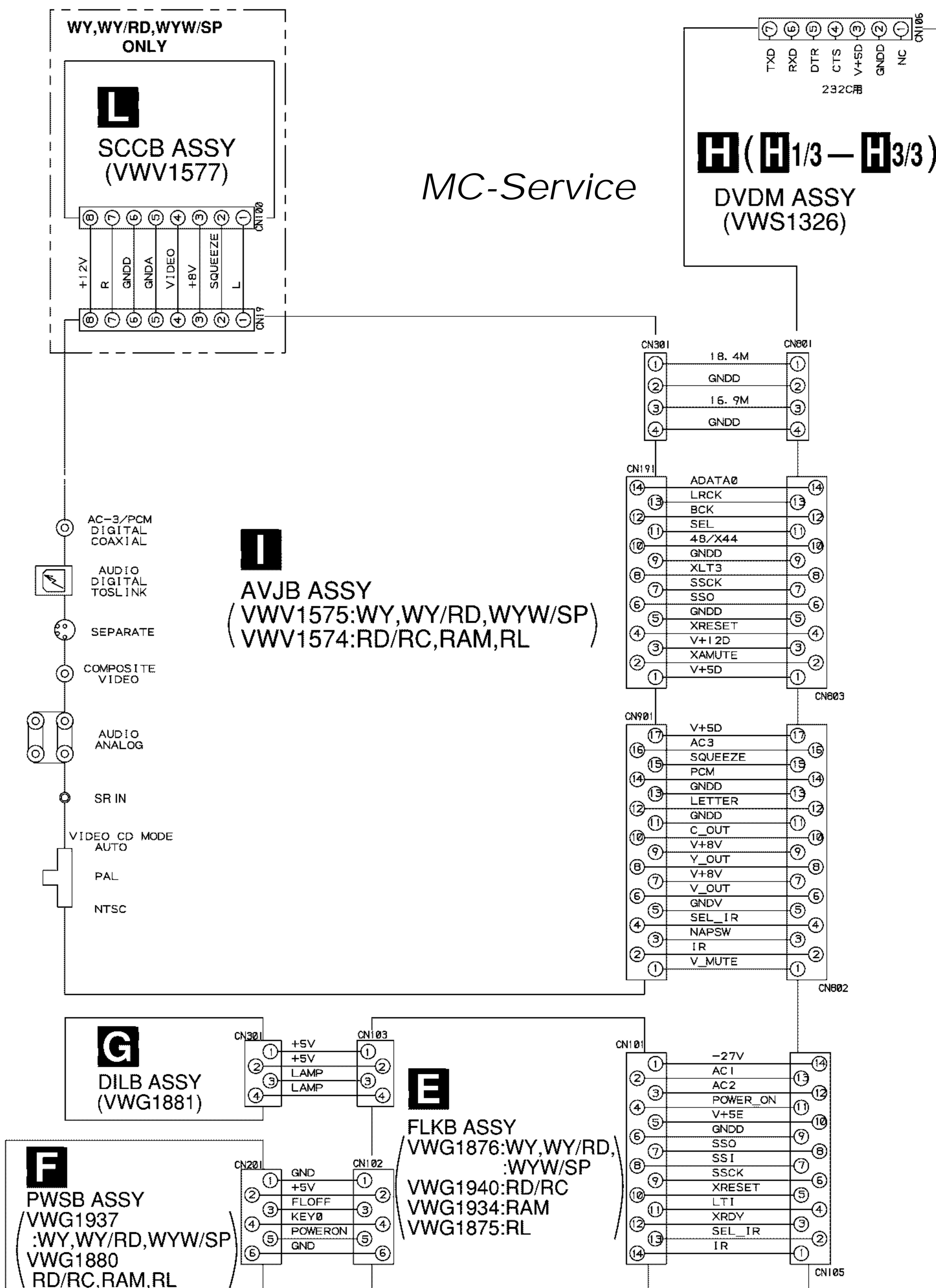
### ● SERVO MECHANISM ASSY PARTS LIST

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
NSP	1	Spindle Motor Assy	VXX2563	NSP	18	Floating Rubber	DEB1315
	2	Magnet Holder Assy	VXX2507		19	Float Base	VNL1732
	3	Magnet	VYM1024		20	Gear D	VNL1766
	4	Magnet Holder	VNE2070		21	Gear Spring	VBH1279
	5	Centering Ring	VNL1746		22	Gear E	VNL1767
NSP	6	Centering Spring	VBH1278	NSP	23	Gear F	VNL1768
	7	Disc Table	VNL1747		24	Motor	VXM1062
	8	Motor	VXM1071		25	INSB Assy	VWG1883
	9	Screw	JGZ17P028FMC		26	Screw	PBZ20P050FMC
	10	Sub Guide Bar	VLL1489		27	Flexible Cable (20P) (DVDM CN102 – Pickup Assy)	VDA1680
NSP	11	Guide Bar	VLL1488	NSP	28	Connector Assy (3P) (INSB CN201 – FGSB CN101)	VKP2150
	12	Mechanism Base	VNL1748		29	Table Sheet	DEC2040
	13	Hook	VNL1770		30	Screw	PBA1048
	14	Hook Spring	VBH1291		31	FGSB Assy	VWG1884
	15	Slider	VNL1745		32	Sheet	VEC1959
NSP	16	HOLD SPRING	VNC1011	NSP			
	17	Pickup Assy	VWY1046				

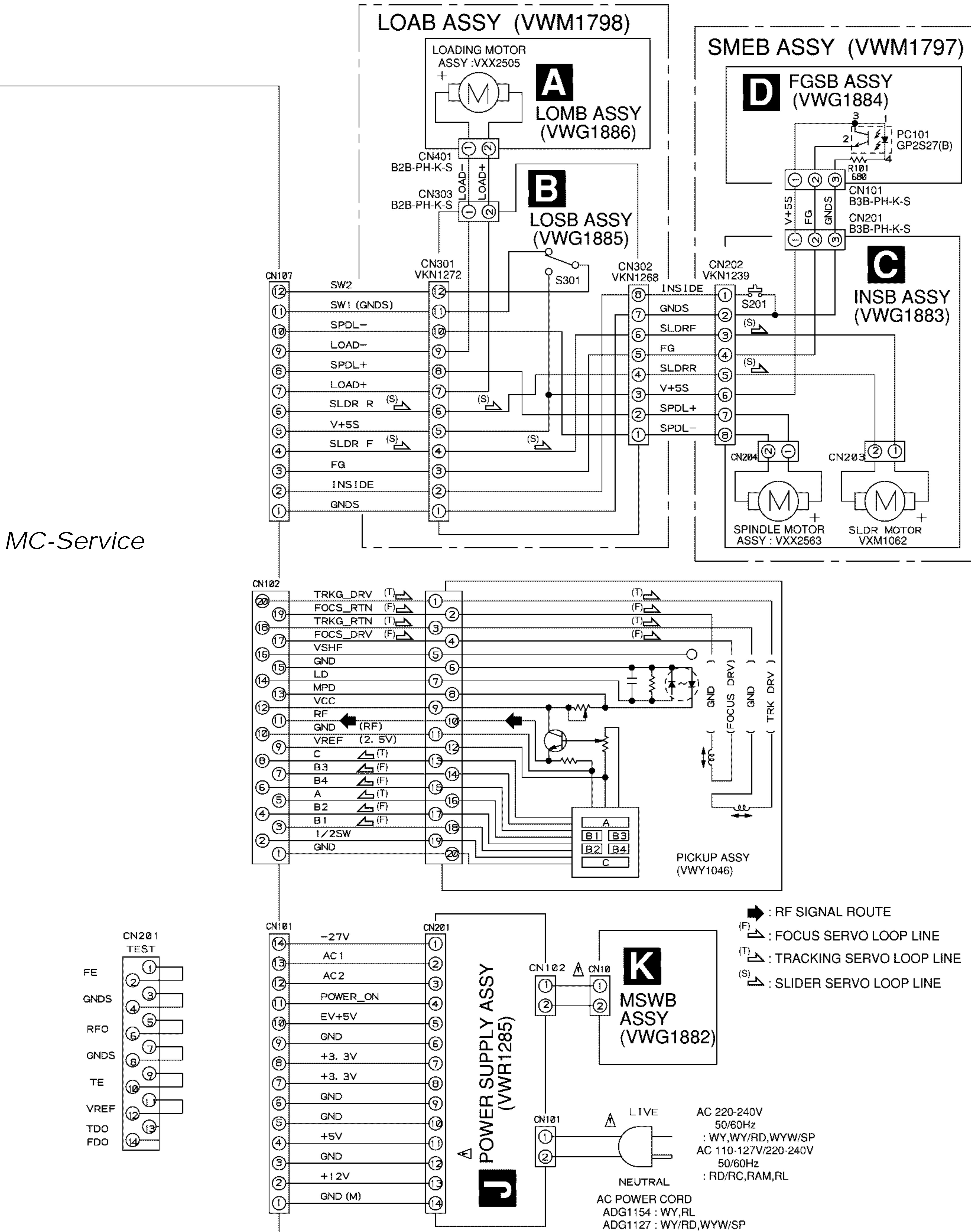
DV-505

### 3. SCHEMATIC DIAGRAM

#### 3.1 OVERALL CONNECTION DIAGRAM, LOMB, LOSB, INSB AND FGSB ASSEMBLIES



Note : When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".

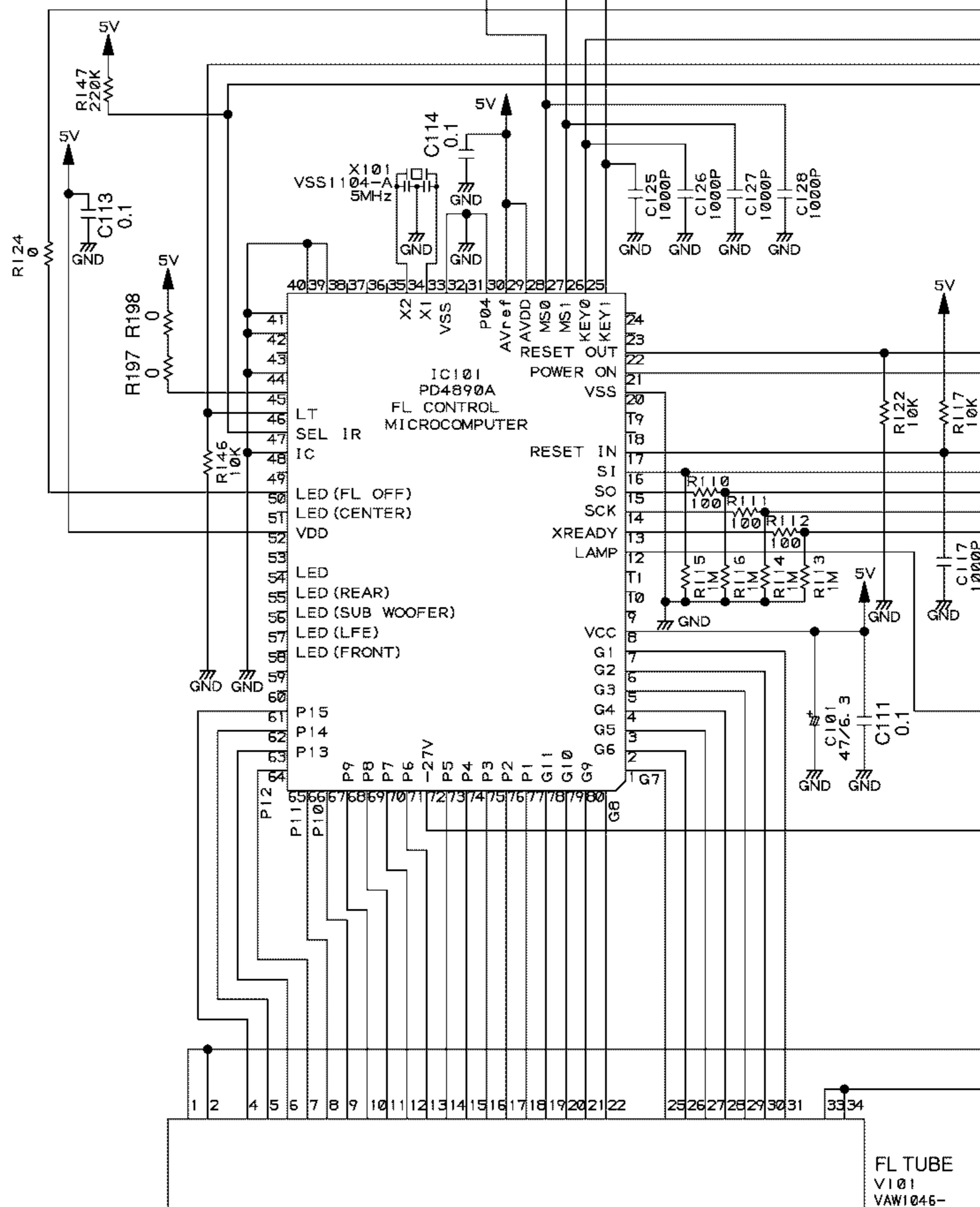
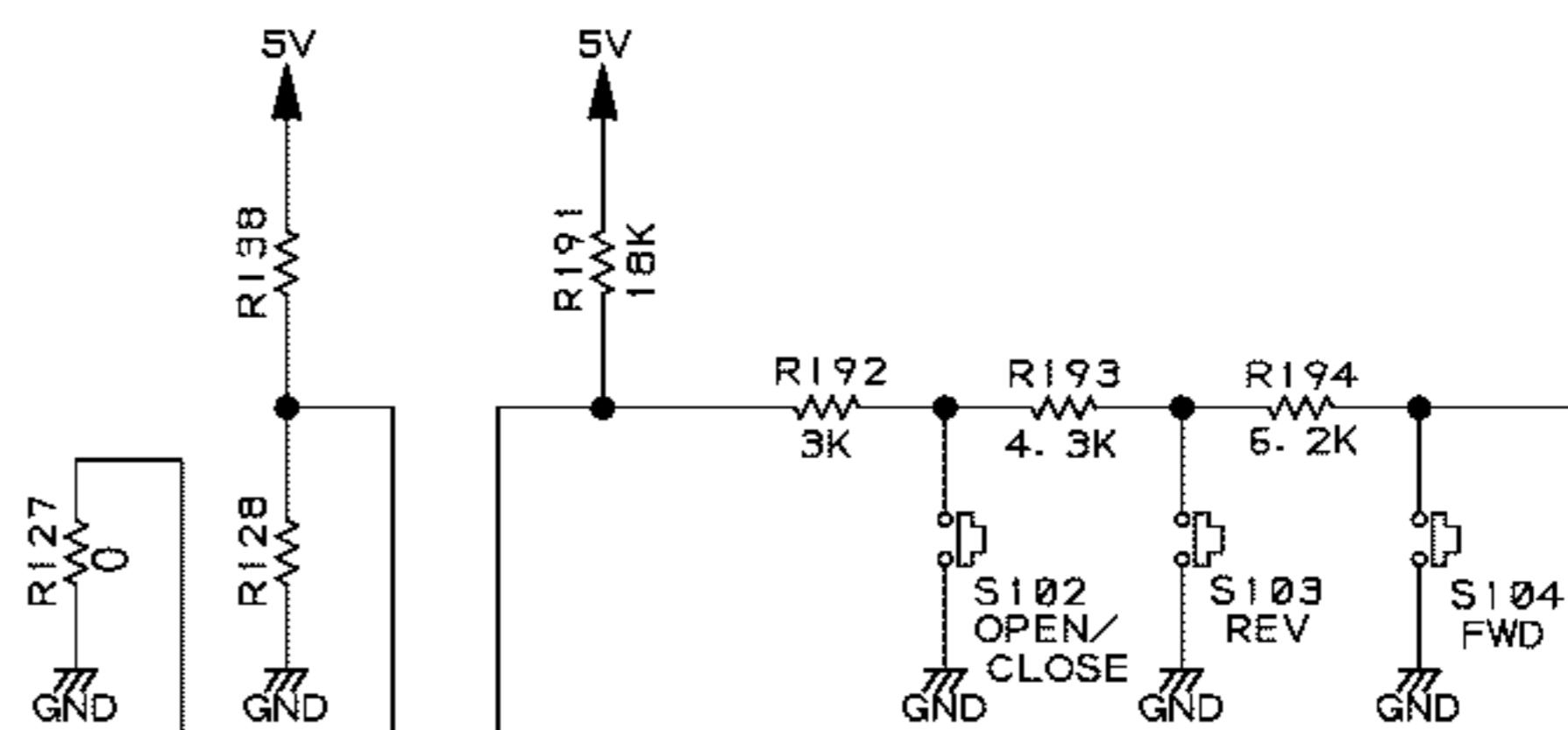


## **3.2 FLKB, PWSB AND DILB ASSEMBLIES**

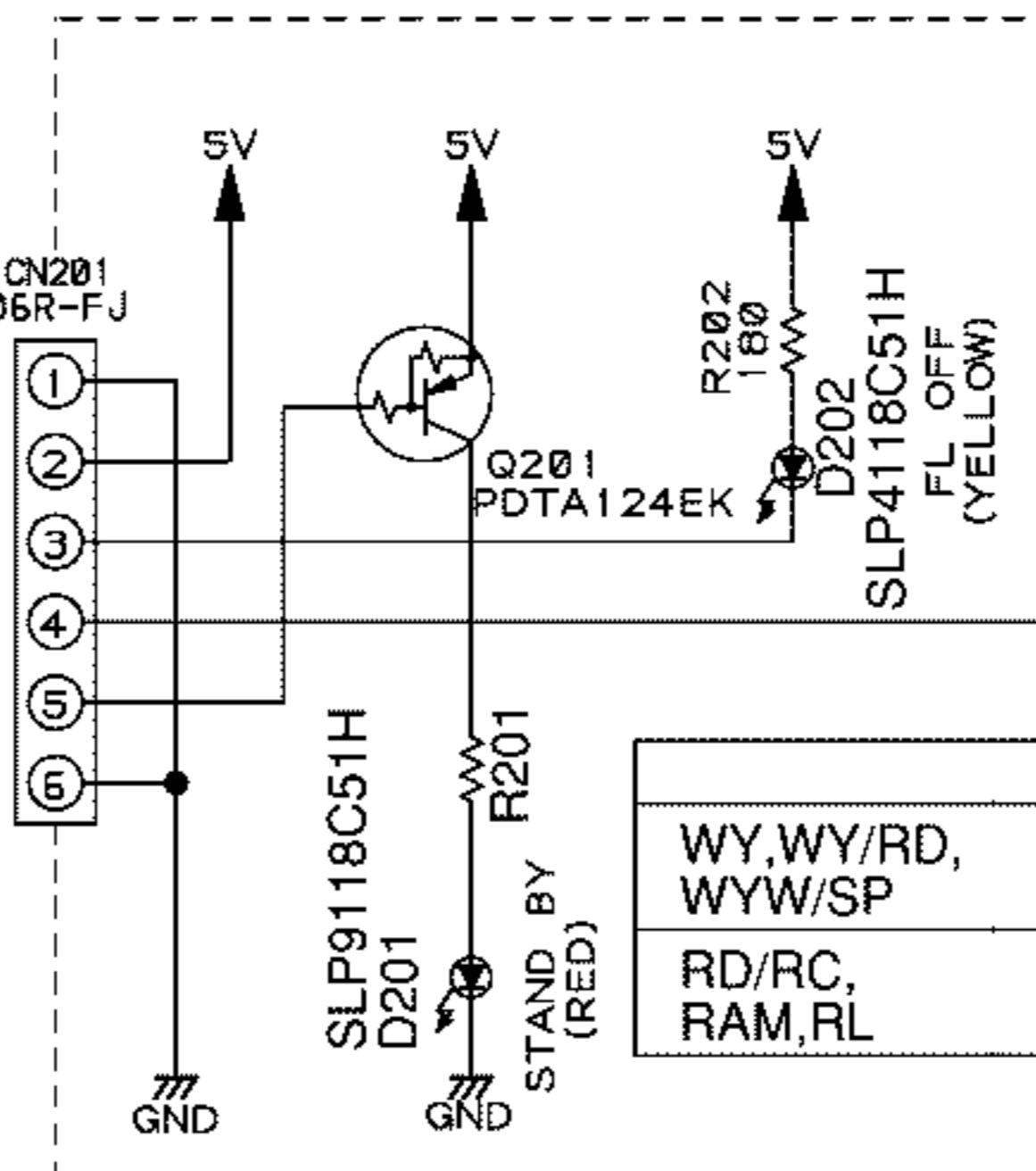
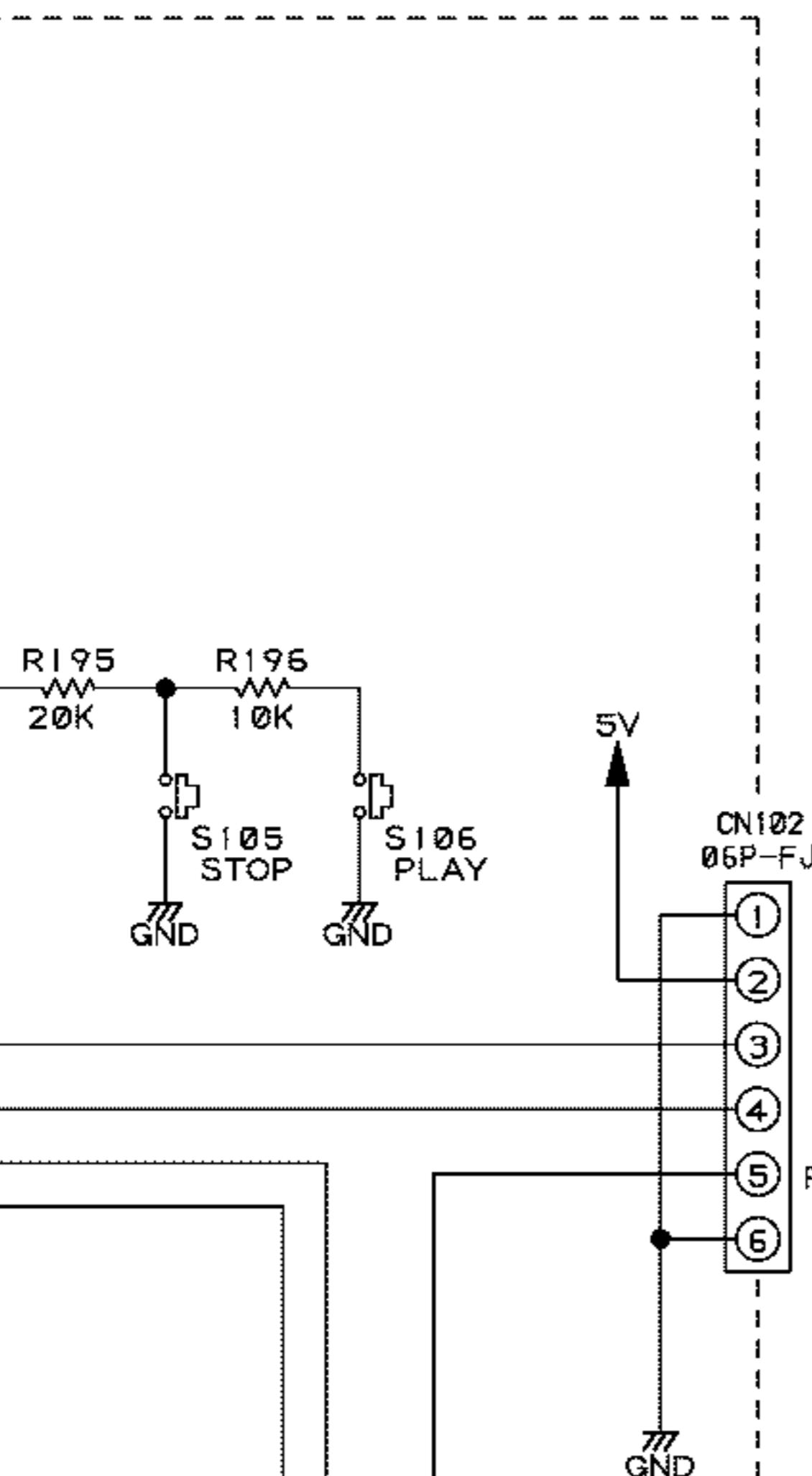
**E FLKB ASSY**

VWG1876 :WY,WY/RD,WYW/SP  
VWG1940 :RD/RC  
VWG1934 :RAM  
VWG1875 :RL

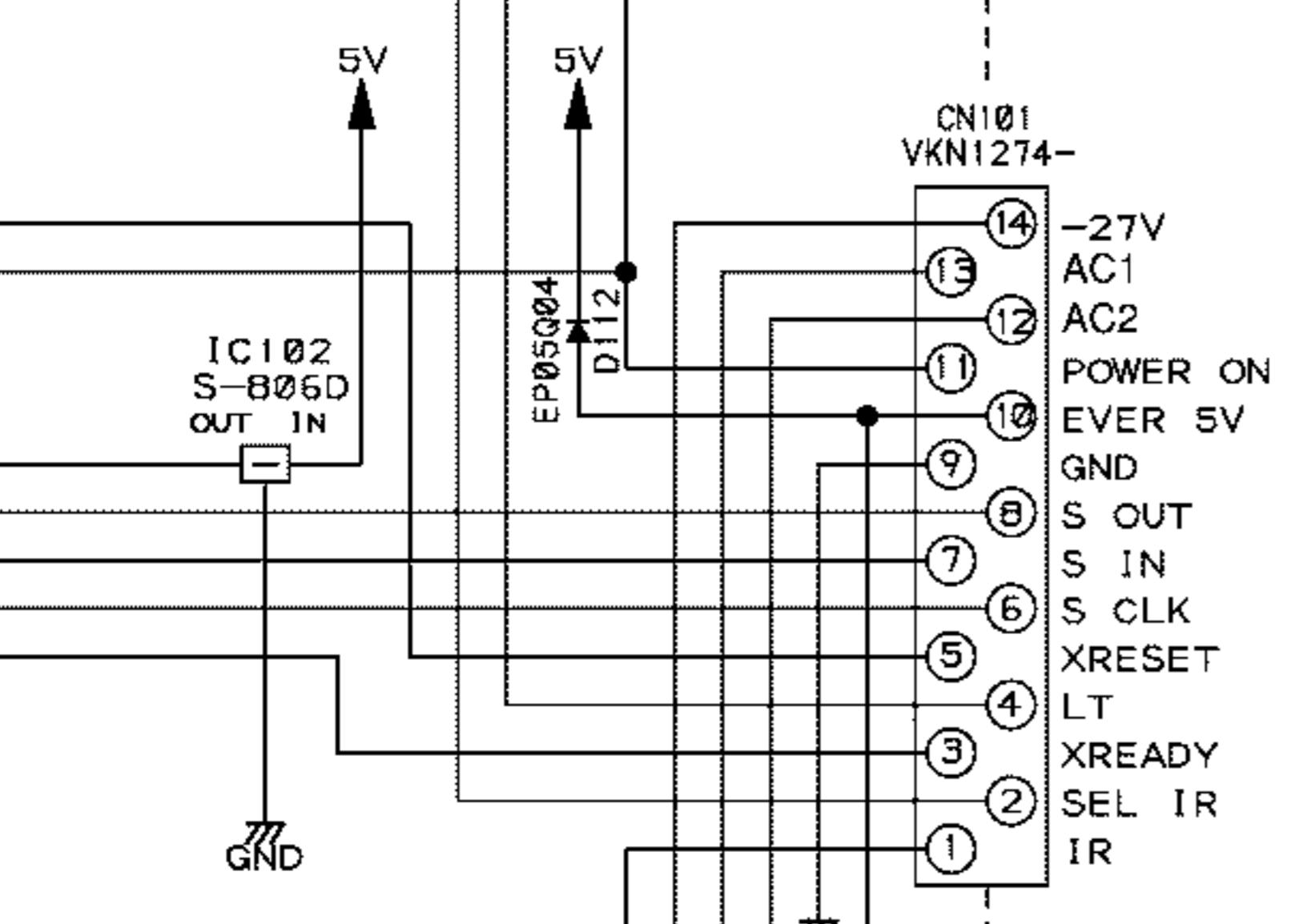
	R128	R138
WY,WY/RD		
WYW/SP	27k	20k
RD/RC	16k	2.7k
RAM	27k	68k
RL	47k	62k



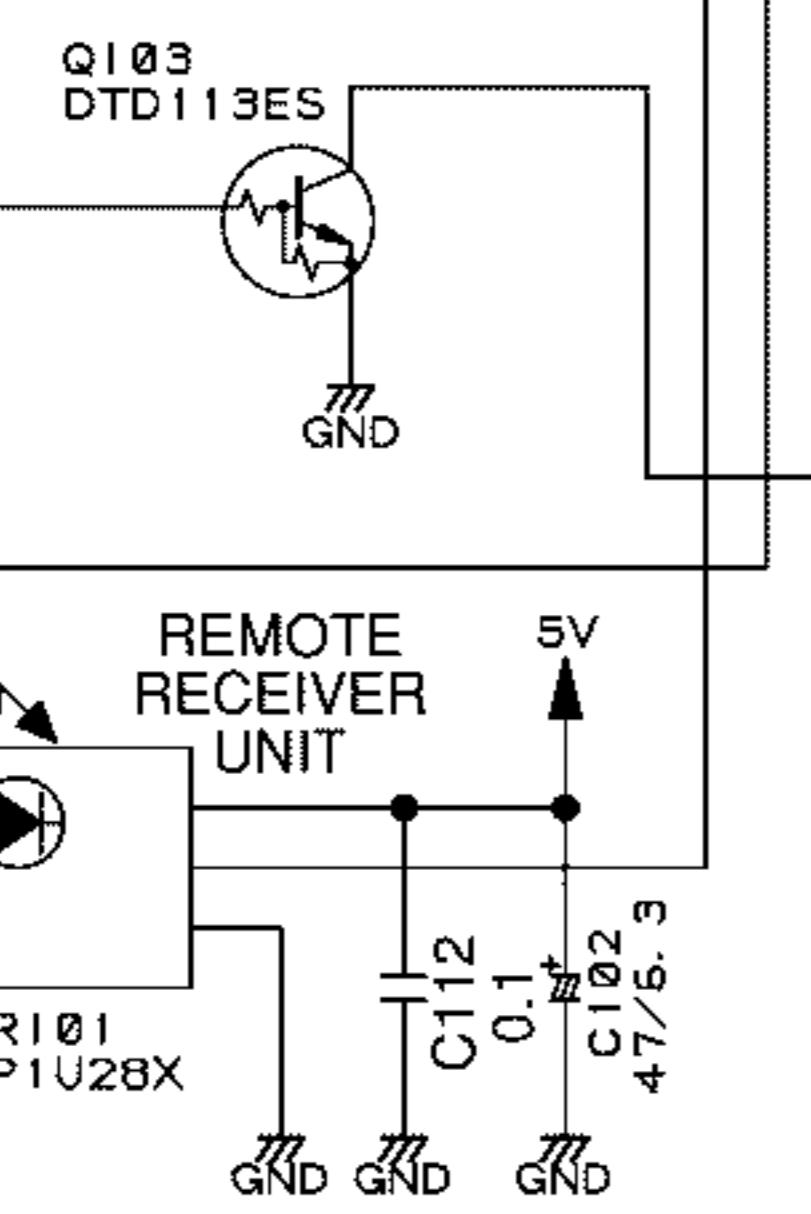
# MC-Service

**F**

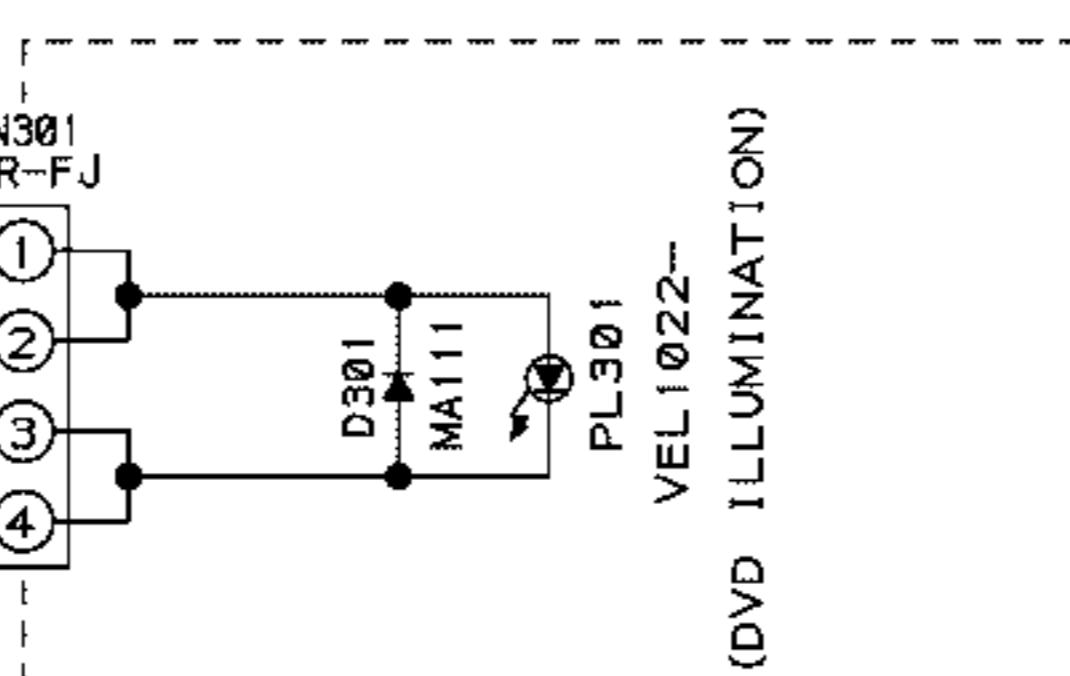
PWSB ASSY  
VWG1937  
:WY,WY/RD,WYW/SP  
VWG1880  
:RD/RC,RAM,RL



**H 2/3**  
**CN105**



R118-R120	
WY,WY/RD, WYW/SP	62
RD/RC, RAM,RL	36



**G DILB ASSY**  
**(VWG1881)**

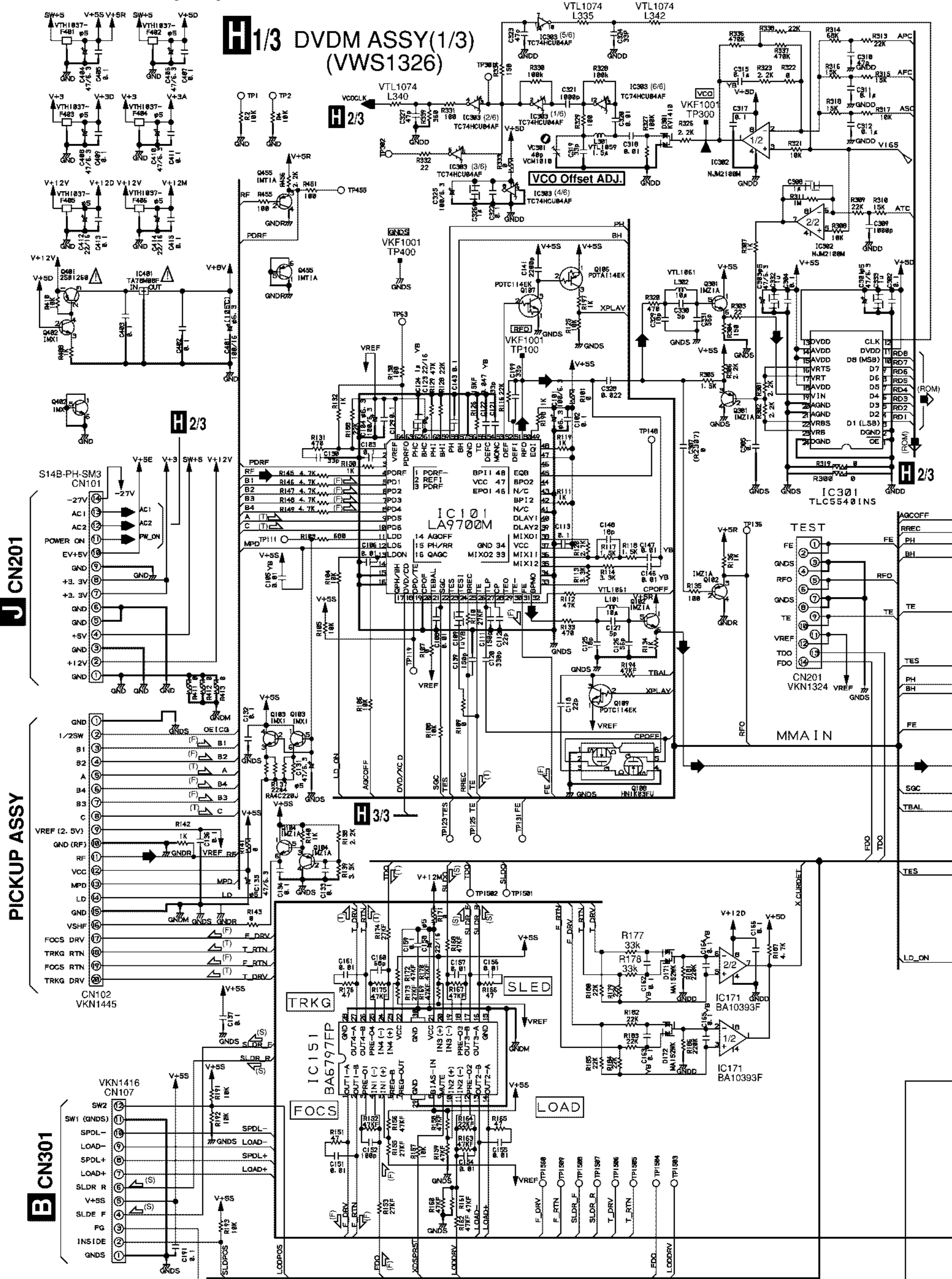
FLKB ASSY  
S102 : ▲ (OPEN/CLOSE)  
S103 : ←←← (REV)  
S104 : →→→ (FWD)  
S105 : □ (STOP)  
S106 : ▷/▷ (PLAY/PAUSE)

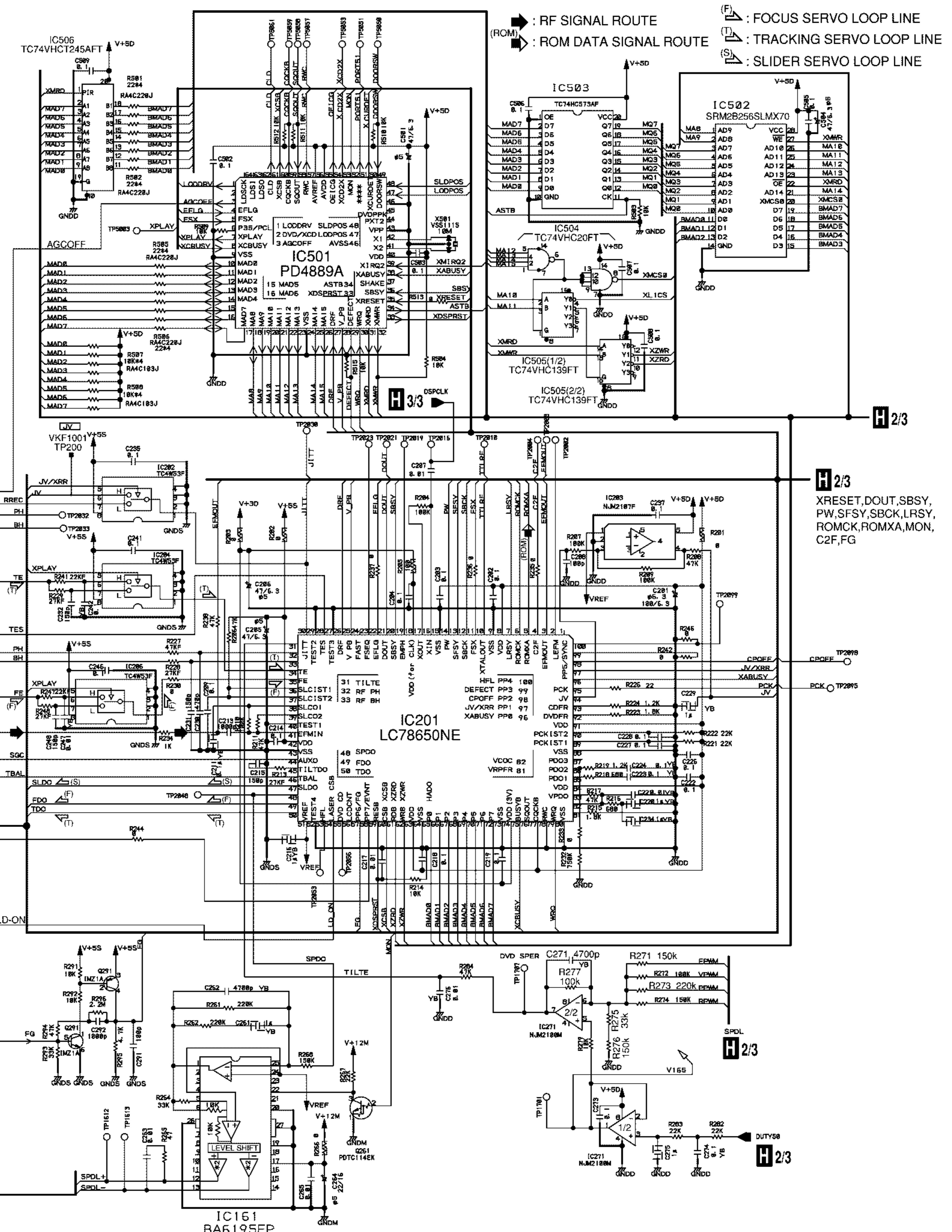
PWSB ASSY  
S202 : FL OFF

MC-Service

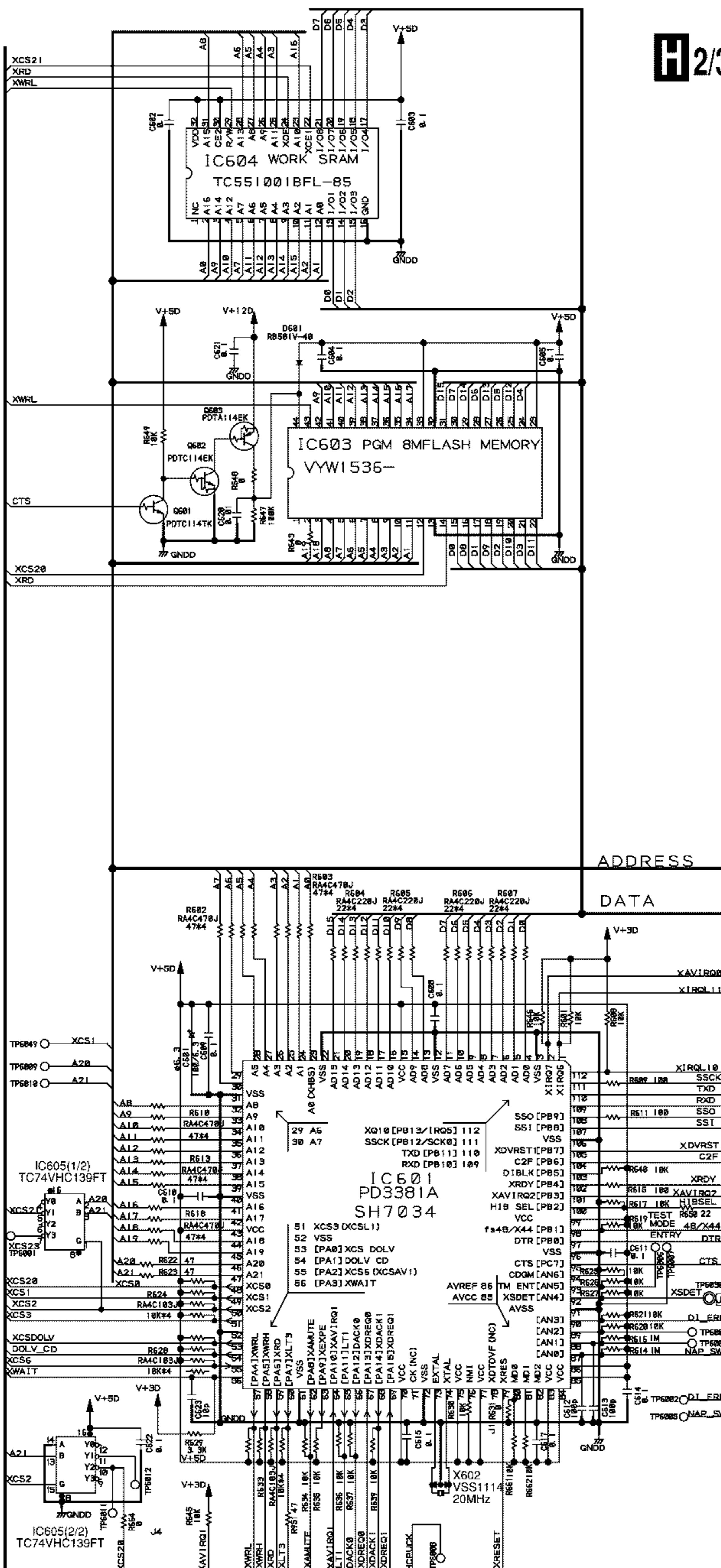
**E F G**

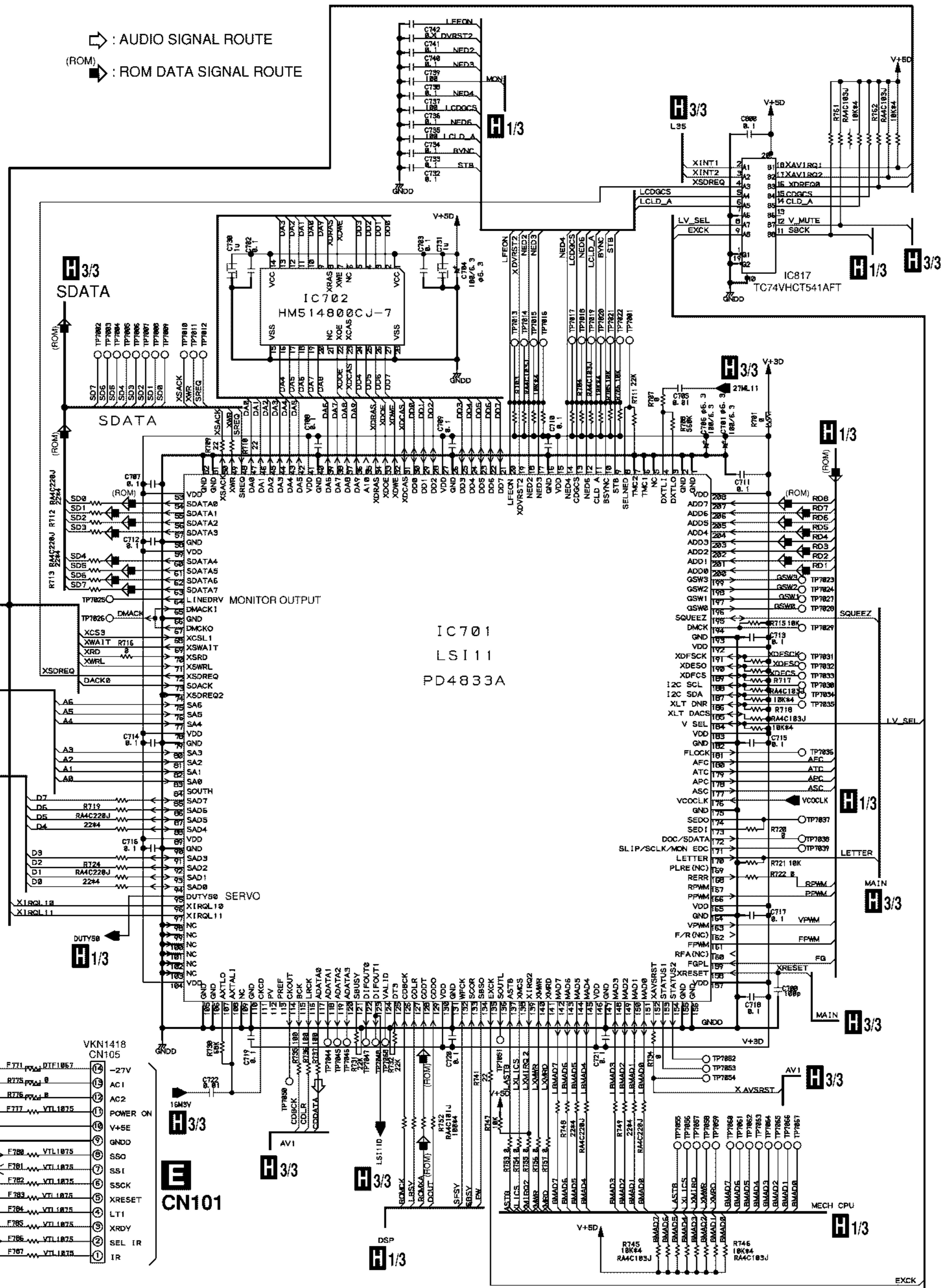
### **3.3 DVDM ASSY(1/3)**



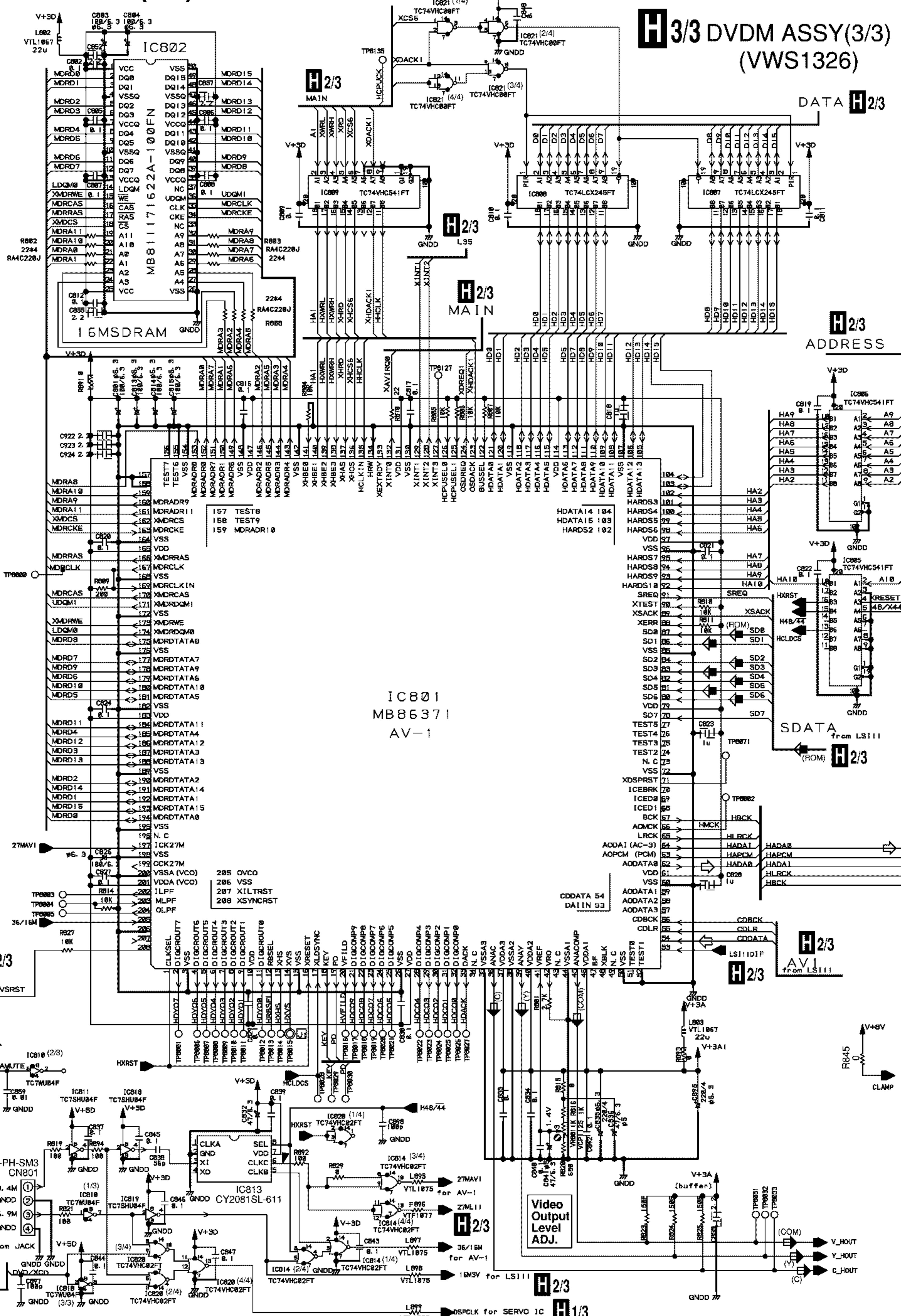


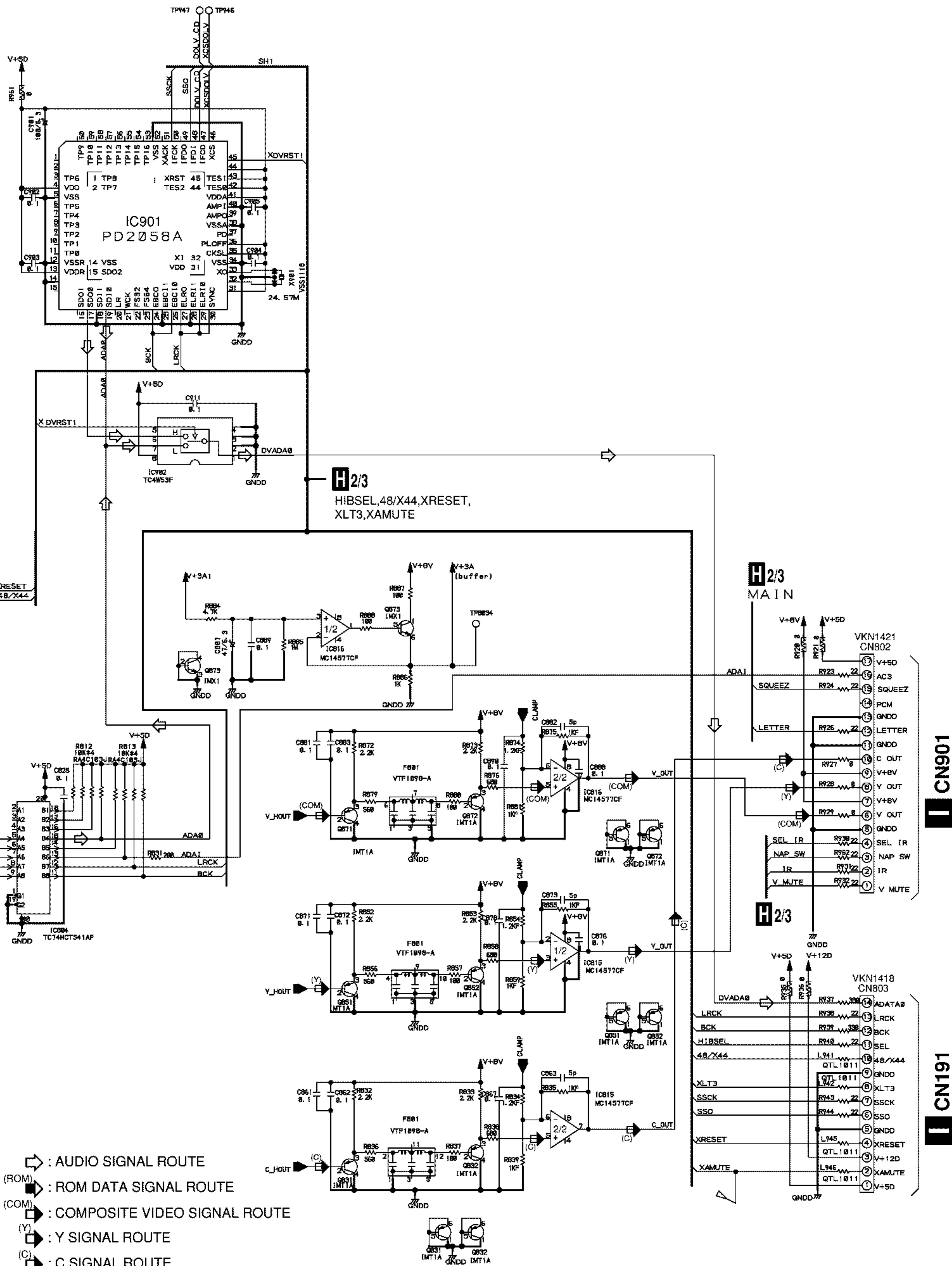
## 3.4 DVDM ASSY(2/3)





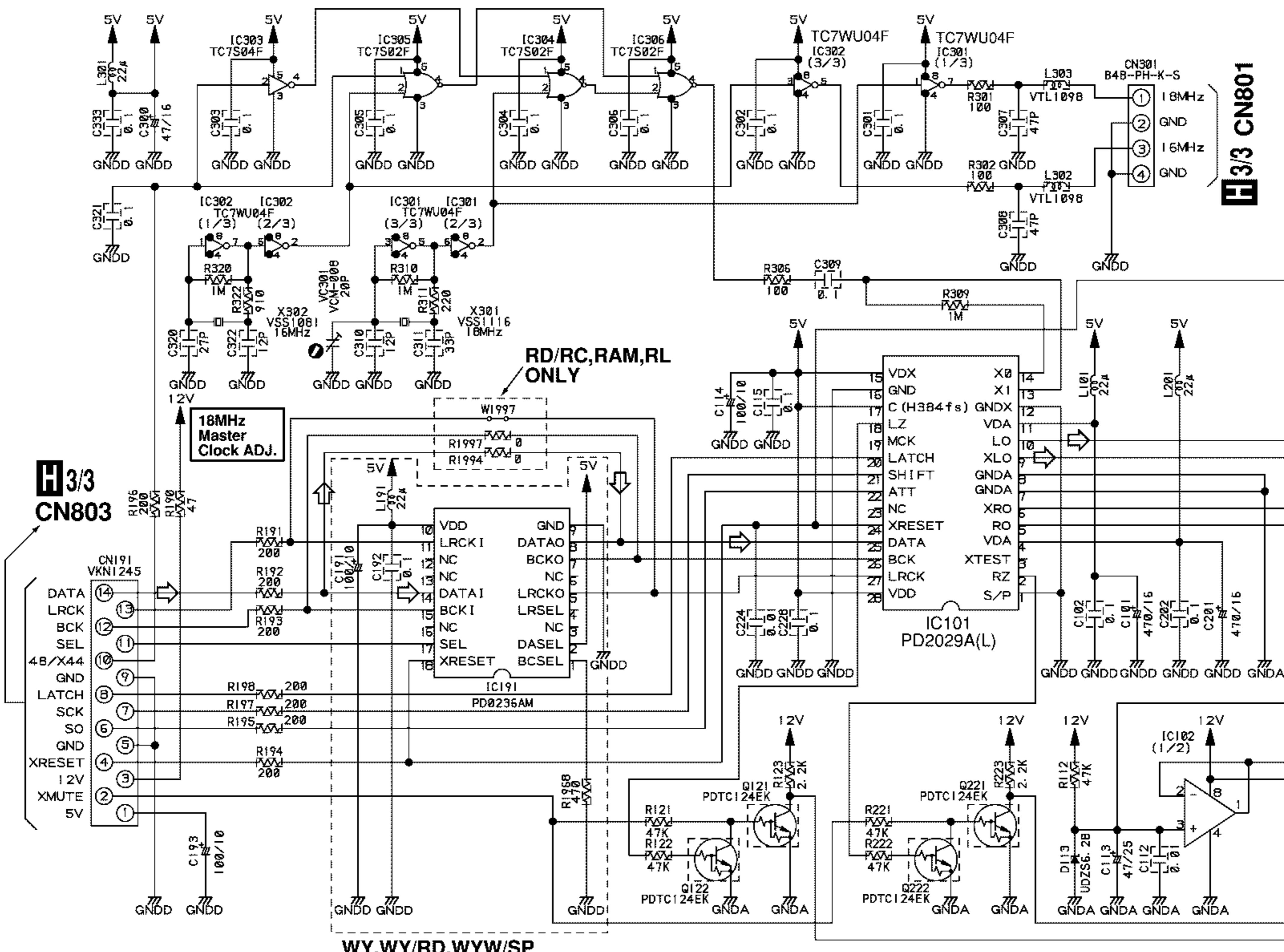
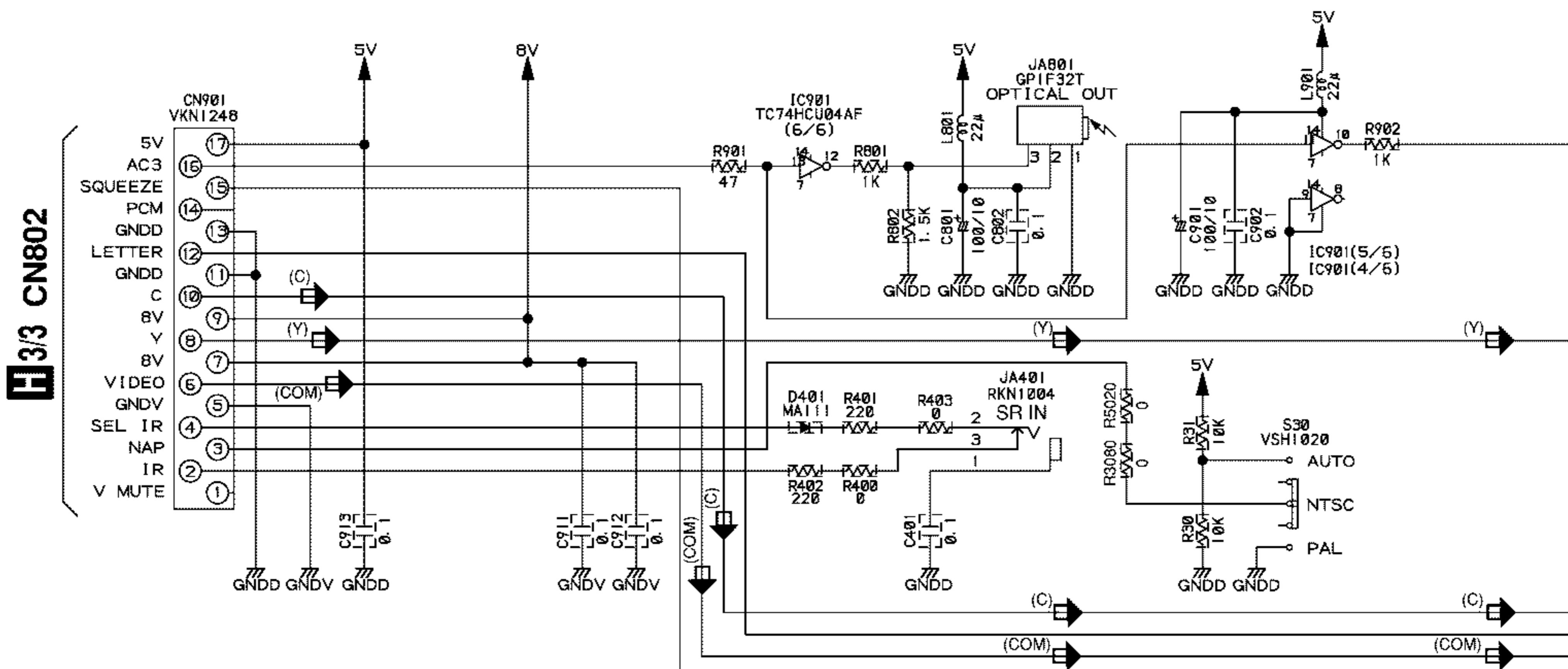
### **3.5 DVDM ASSY(3/3)**

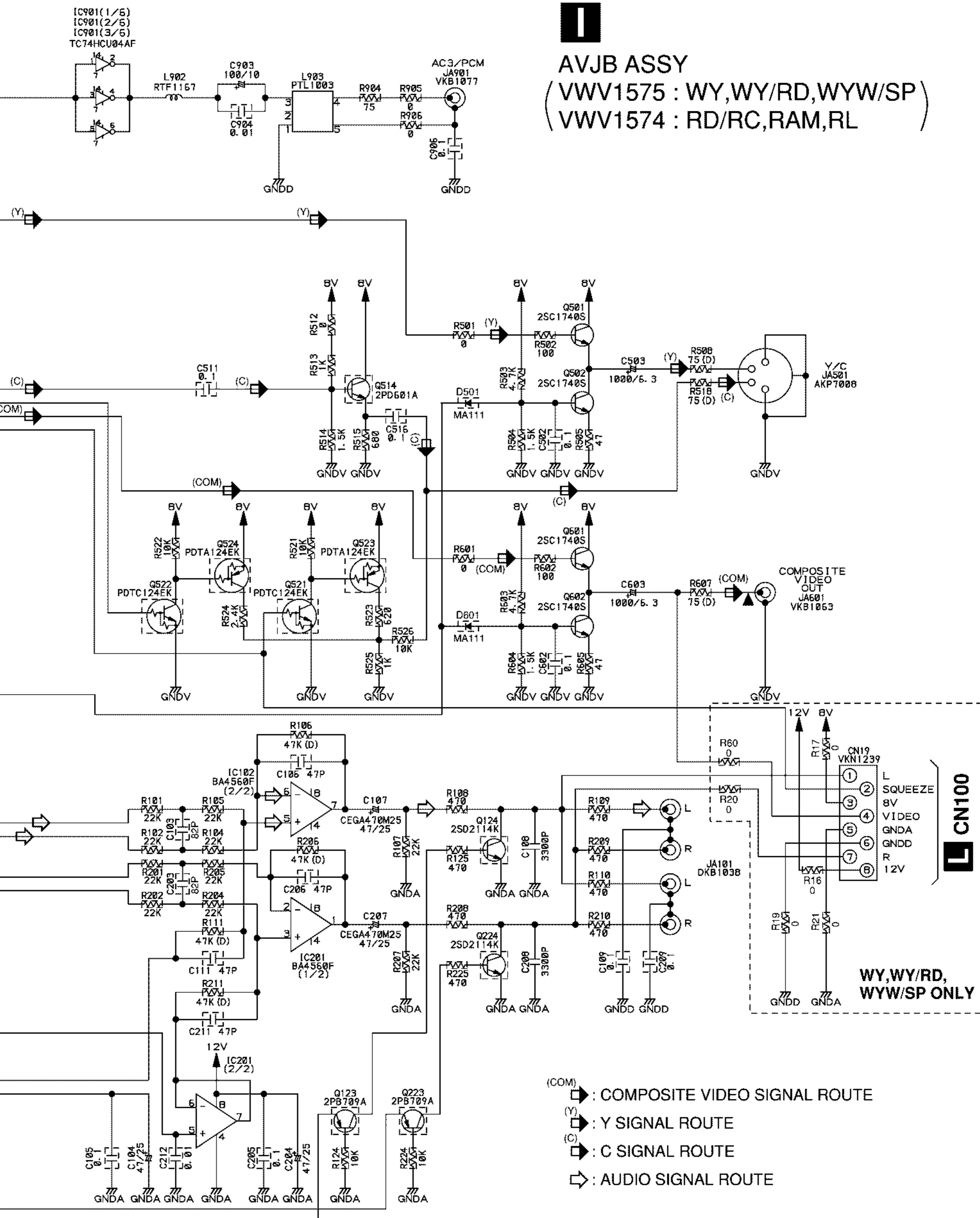




# MC-Service

## **3.6 AVJB ASSY**



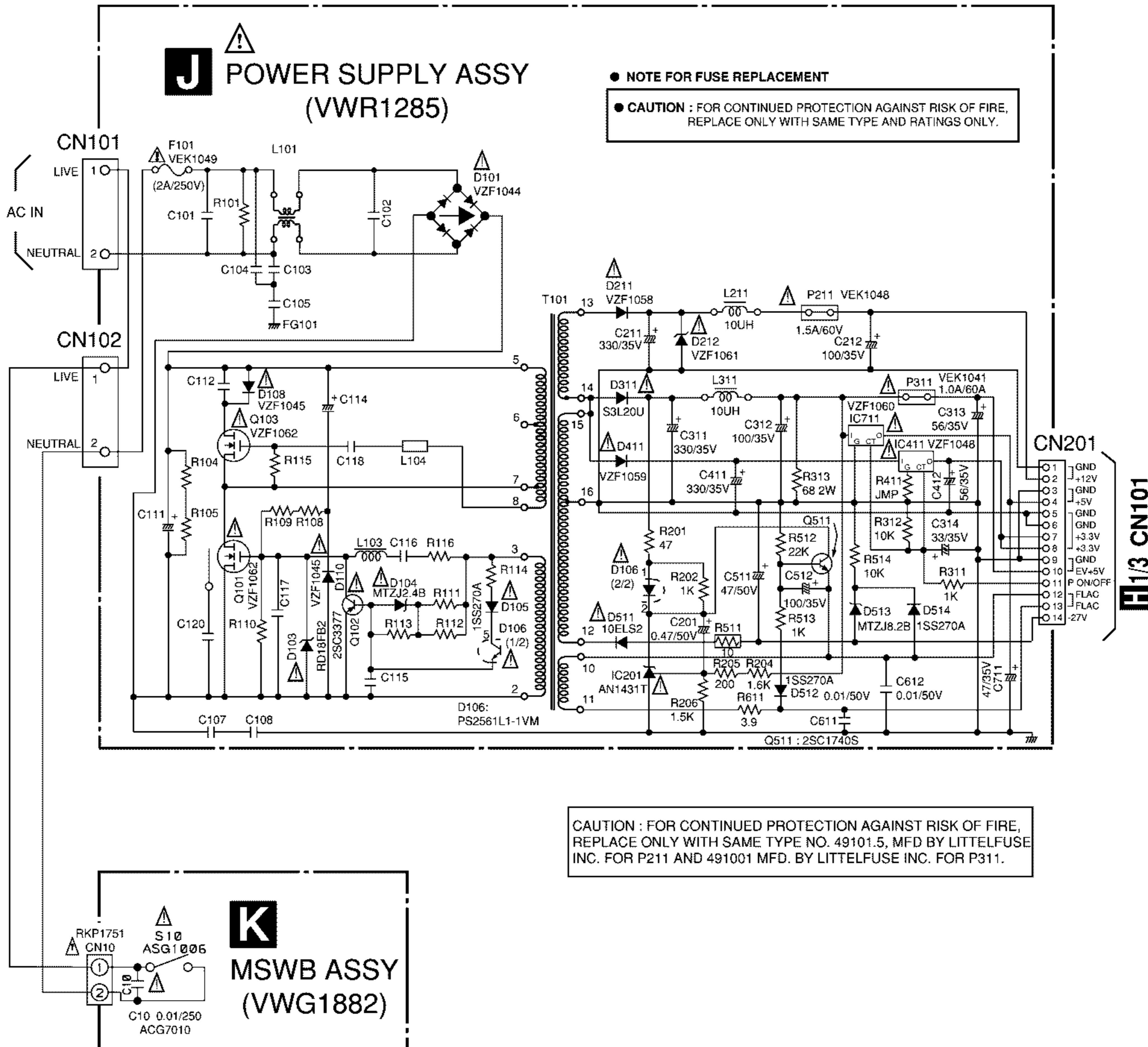


(COM) : COMPOSITE VIDEO SIGNAL ROUTE  
 (Y) : Y SIGNAL ROUTE  
 (C) : C SIGNAL ROUTE  
 : AUDIO SIGNAL ROUTE

### 3.7 POWER SUPPLY AND MSWB ASSEMBLIES

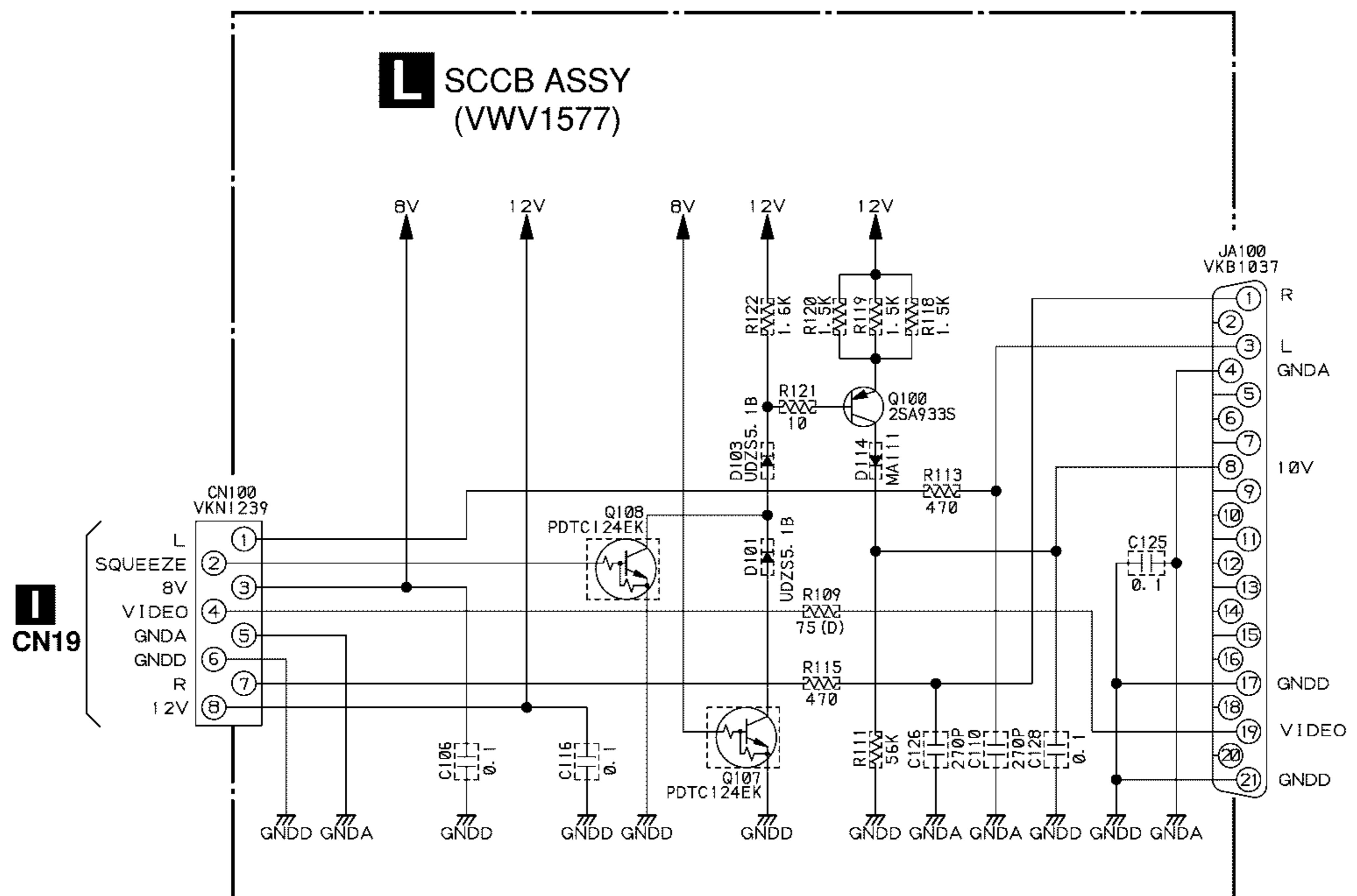
#### « NOTE OF SPARE PARTS IN POWER SUPPLY ASSY »

- In case of repairing, use the described parts only to prevent an accident.
- Please write the red ✓ mark on the board when the primary section of POWER SUPPLY Assy is repaired.
- Please take care to keep the space, not touching other parts when replacing the parts.



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### 3.8 SCCB ASSY(WY,WY/RD,WYW/SP ONLY)



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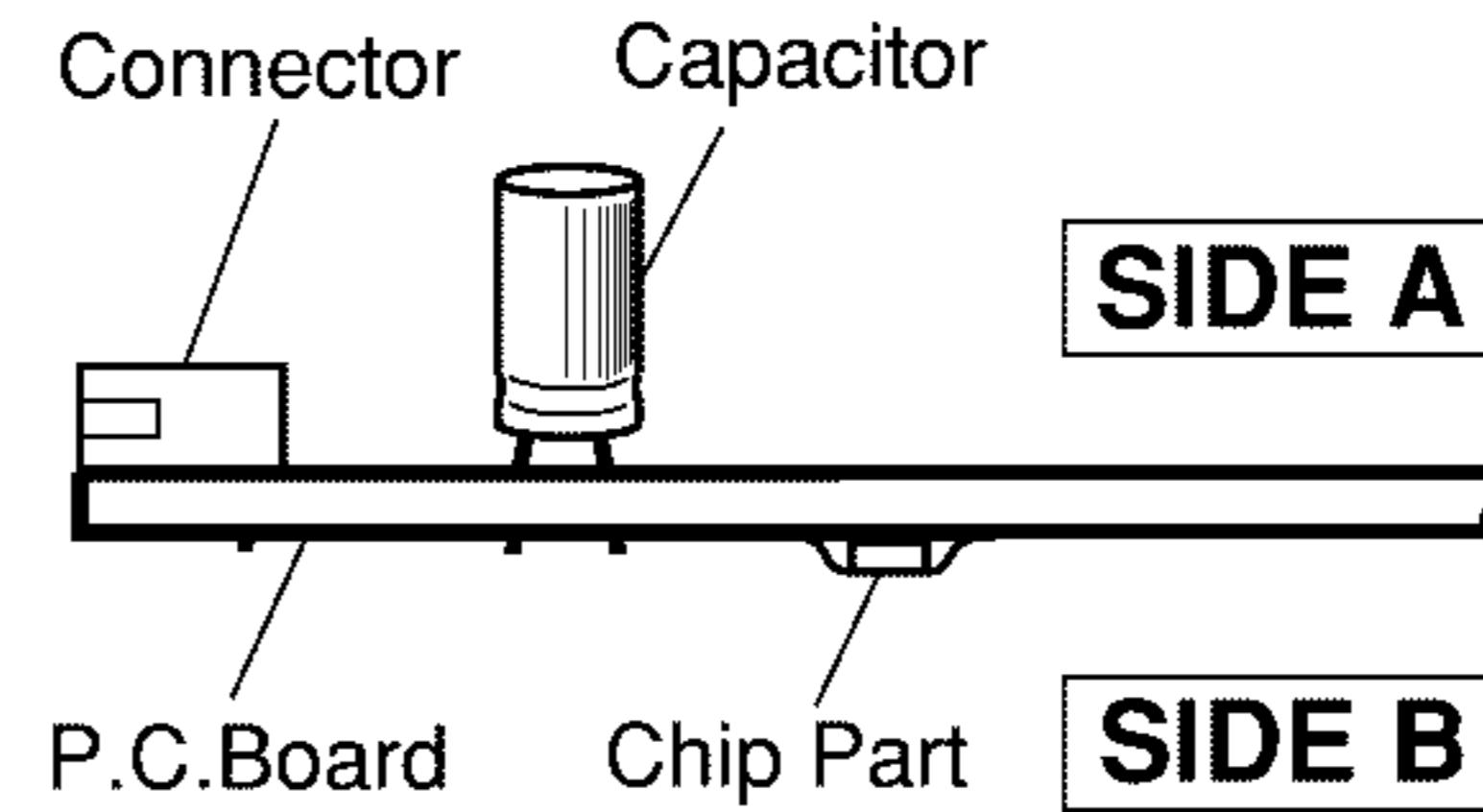


## 4. PCB CONNECTION DIAGRAM

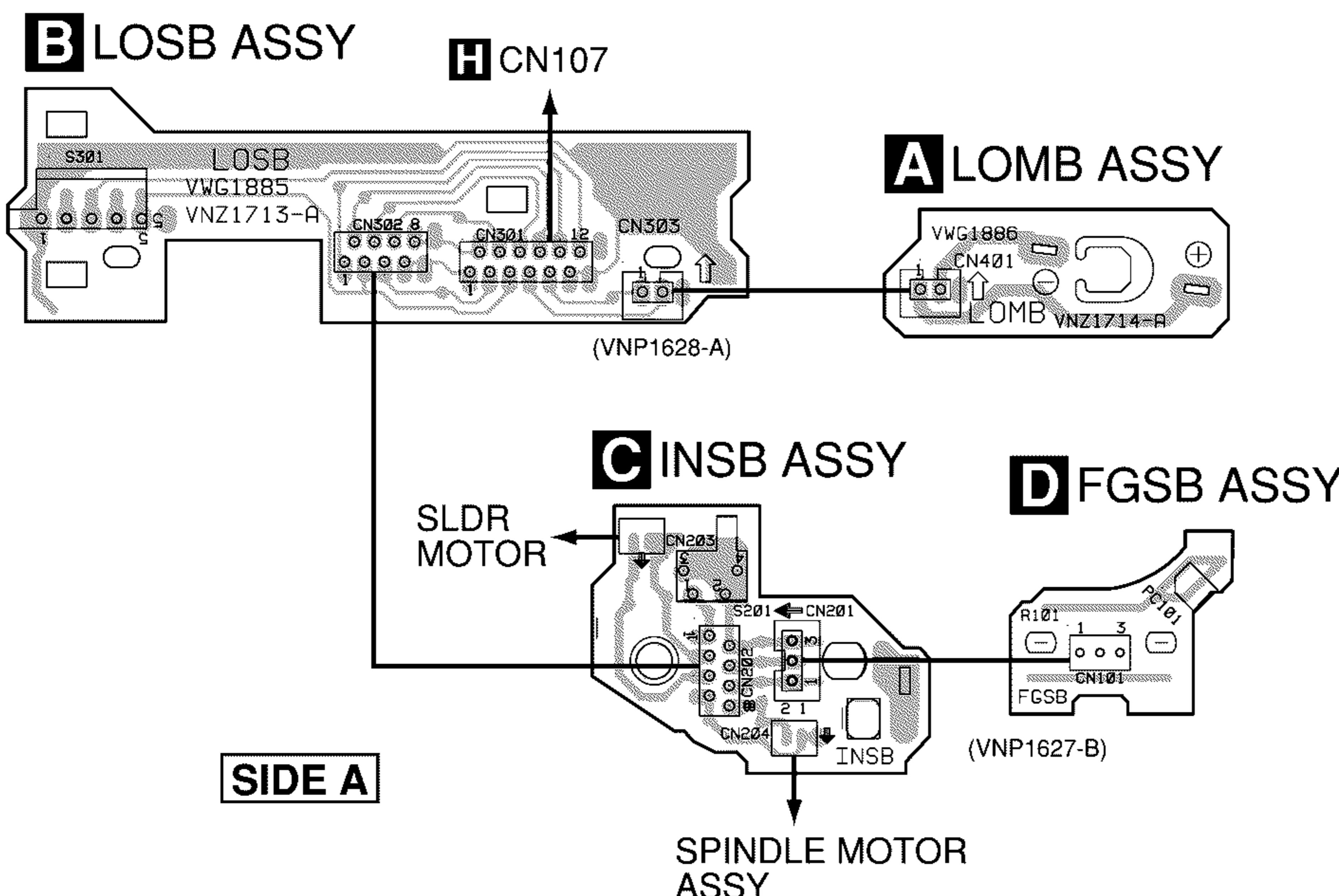
### A NOTE FOR PCB DIAGRAMS :

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.
3. The parts mounted on this PCB include all necessary parts for several destinations. For further information for respective destinations, be sure to check with the schematic diagram.
4. View point of PCB diagrams.

Symbol In PCB Diagrams	Symbol In Schematic Diagrams	Part Name
		Transistor
		Transistor with resistor
		Field effect transistor
		Resistor array
		3-terminal regulator

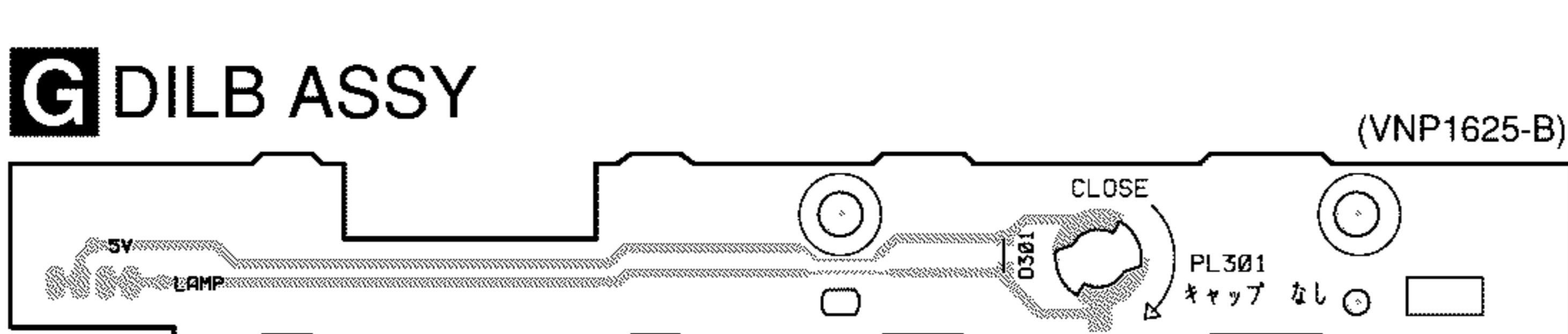
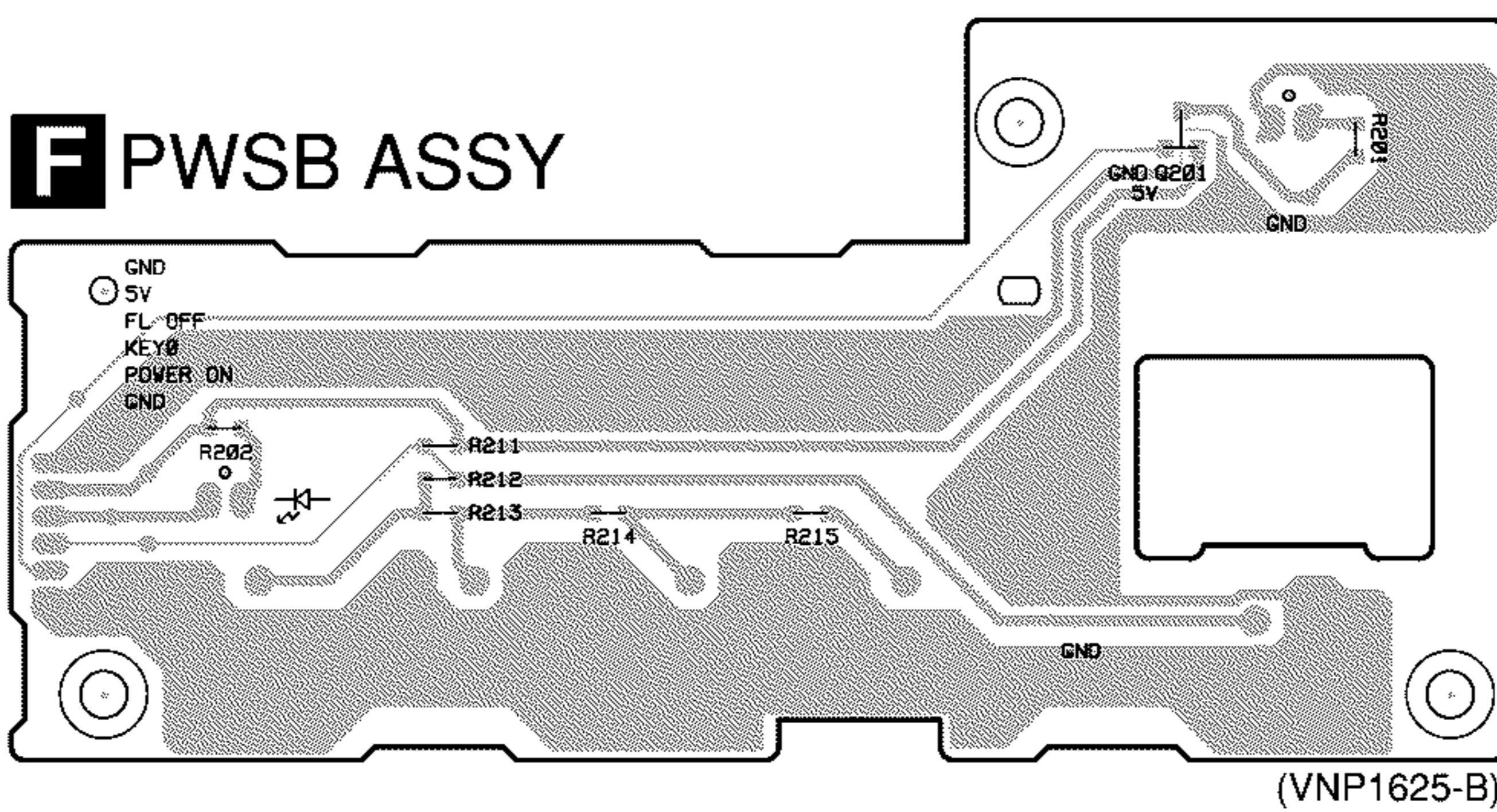
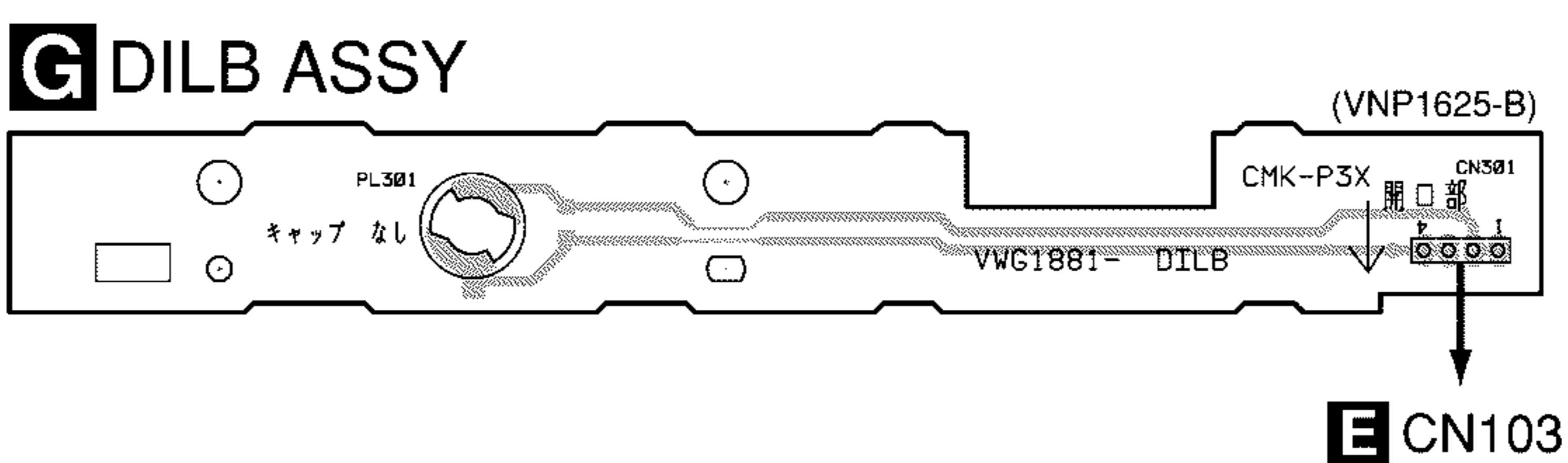
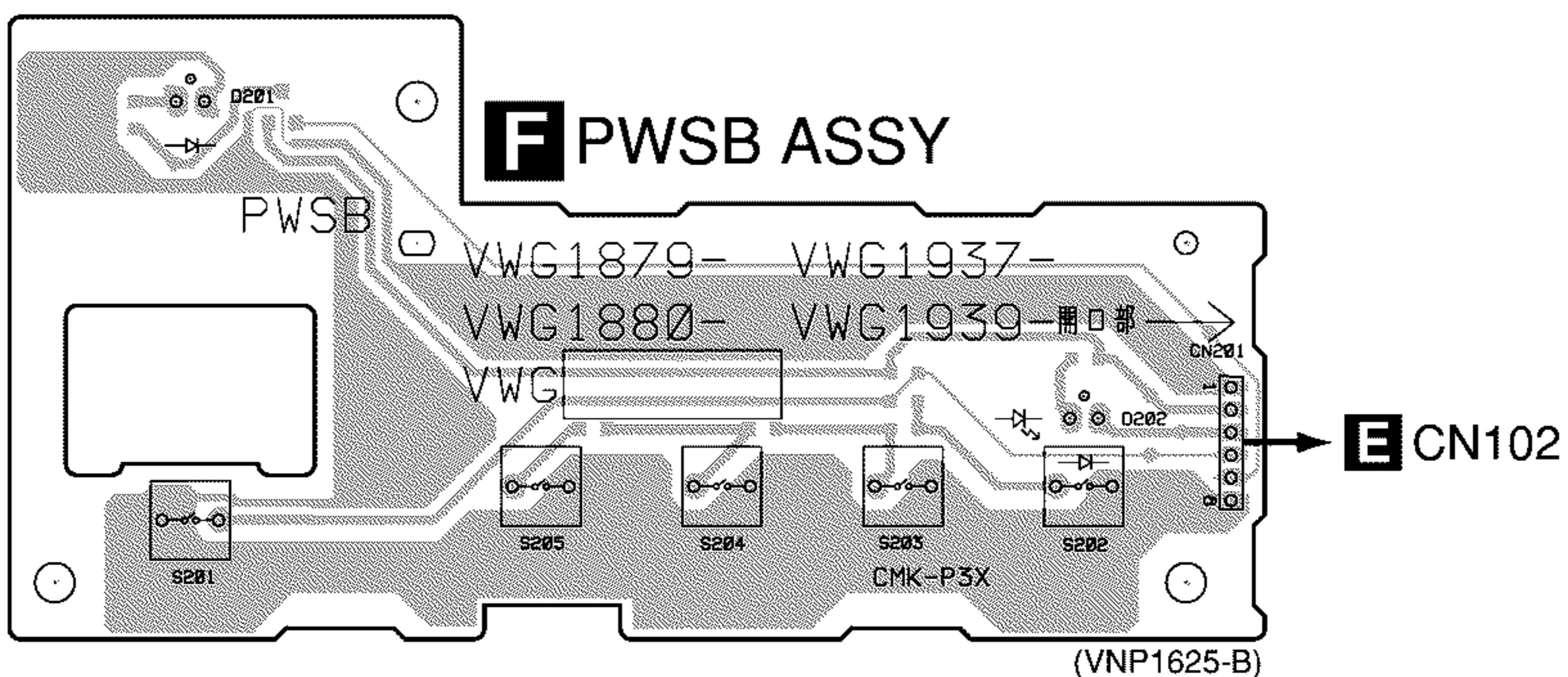


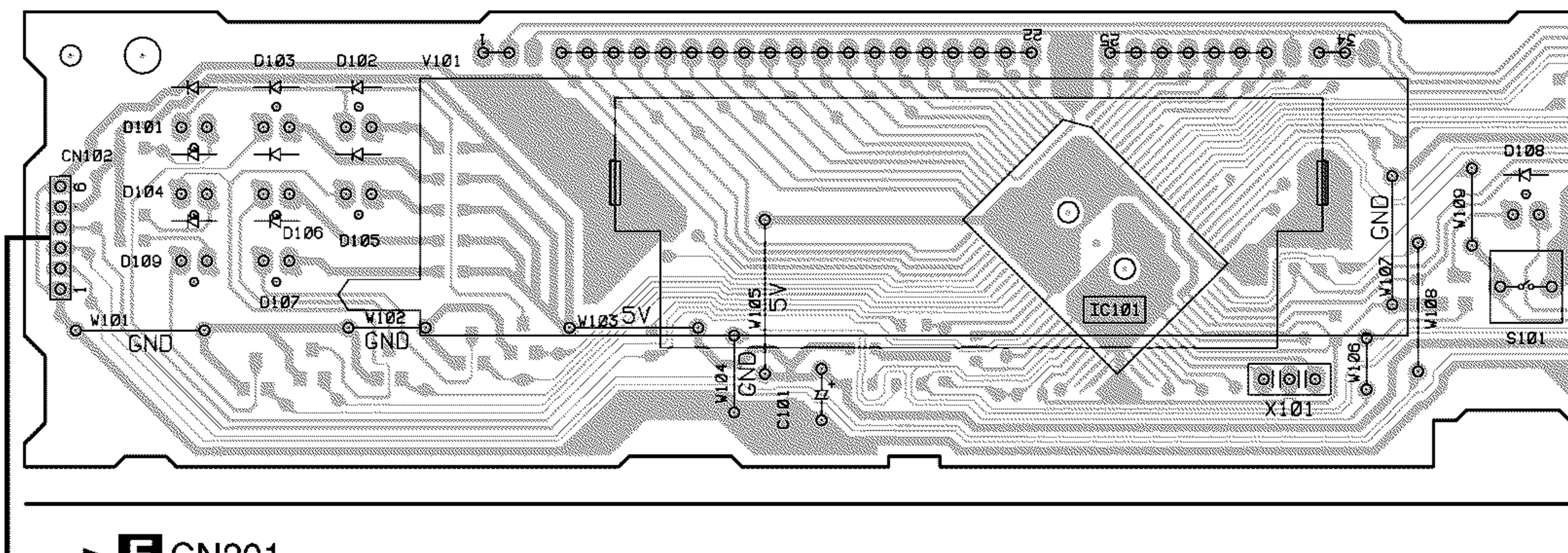
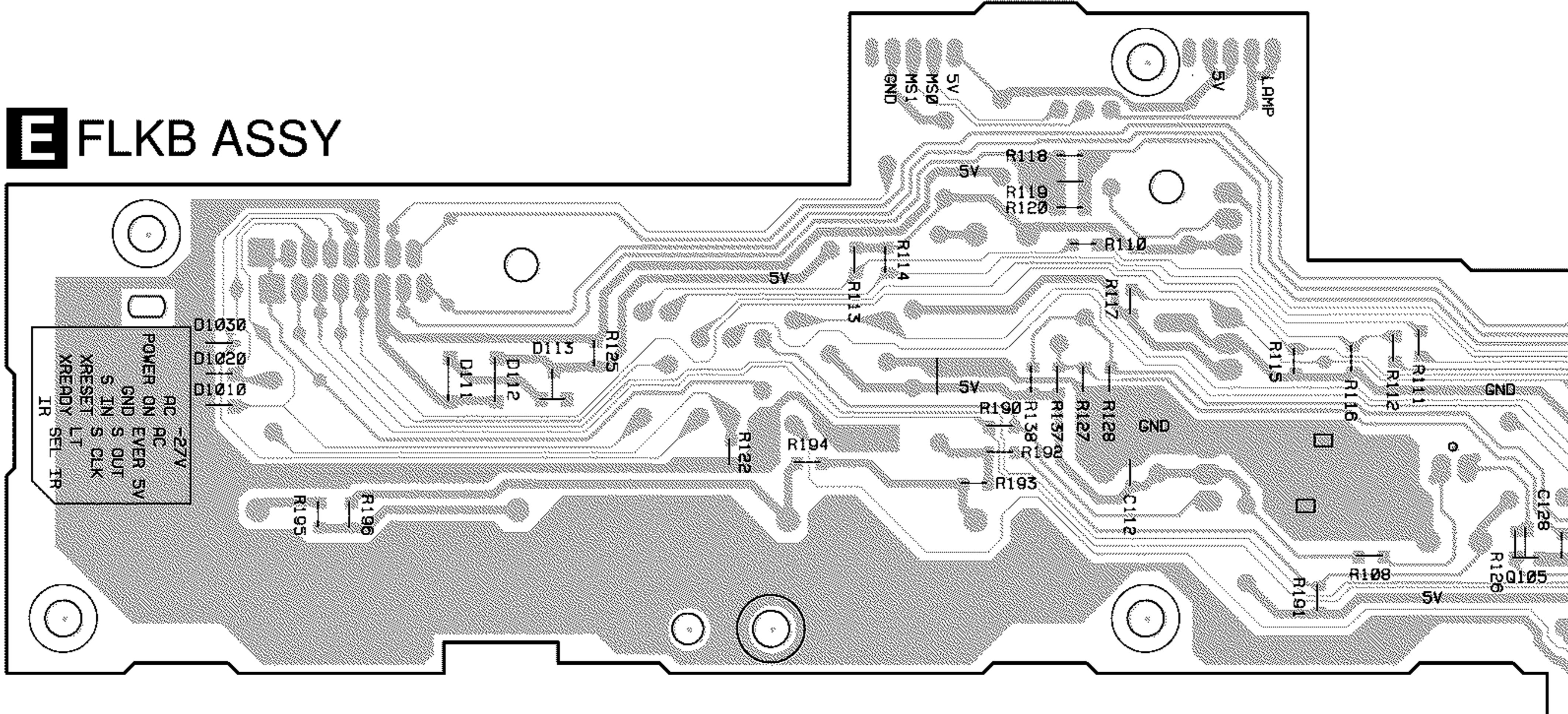
### 4.1 LOMB, LOSB, INSB AND FGSB ASSEMBLIES



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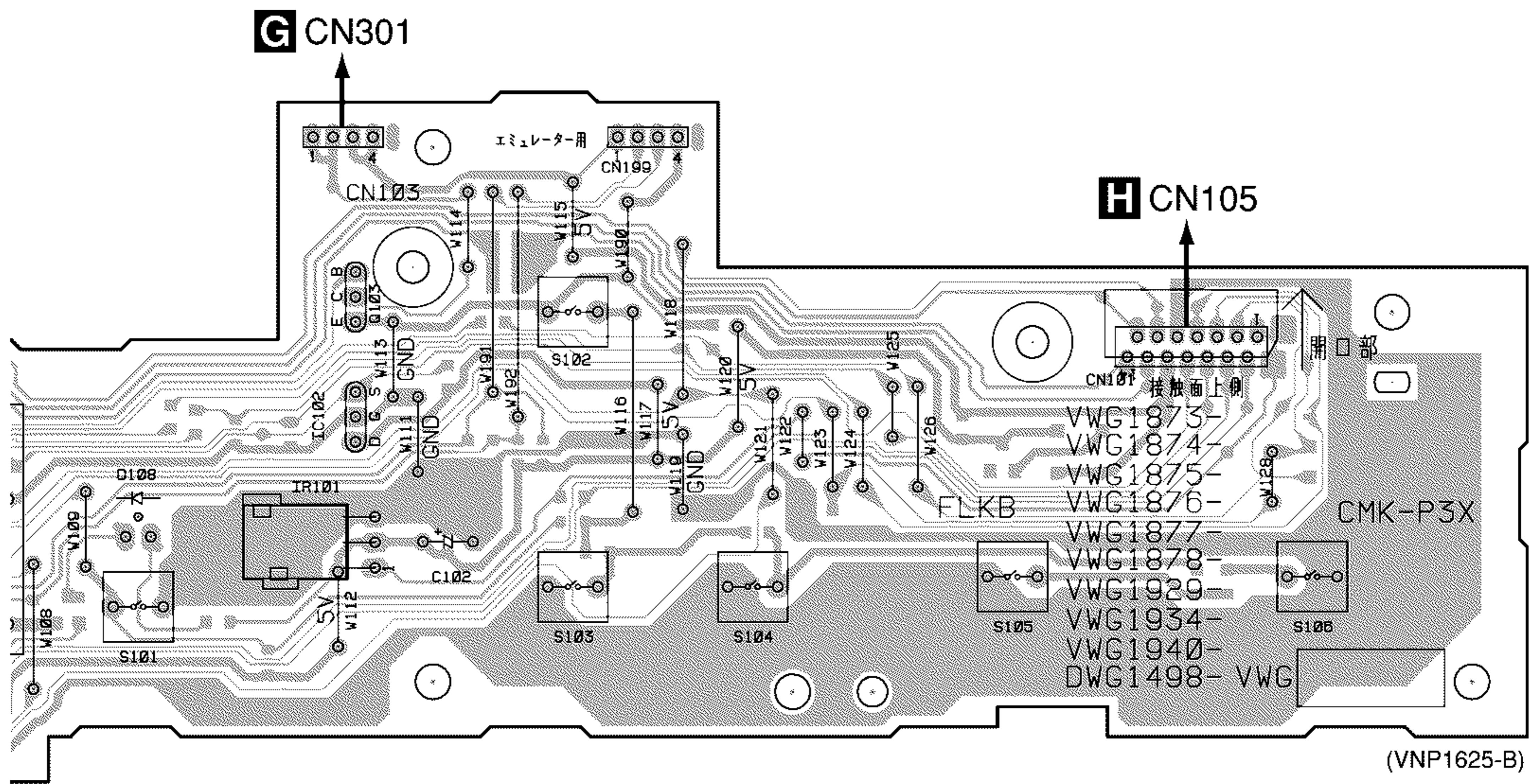
## 4.2 PWSB AND DILB ASSEMBLIES



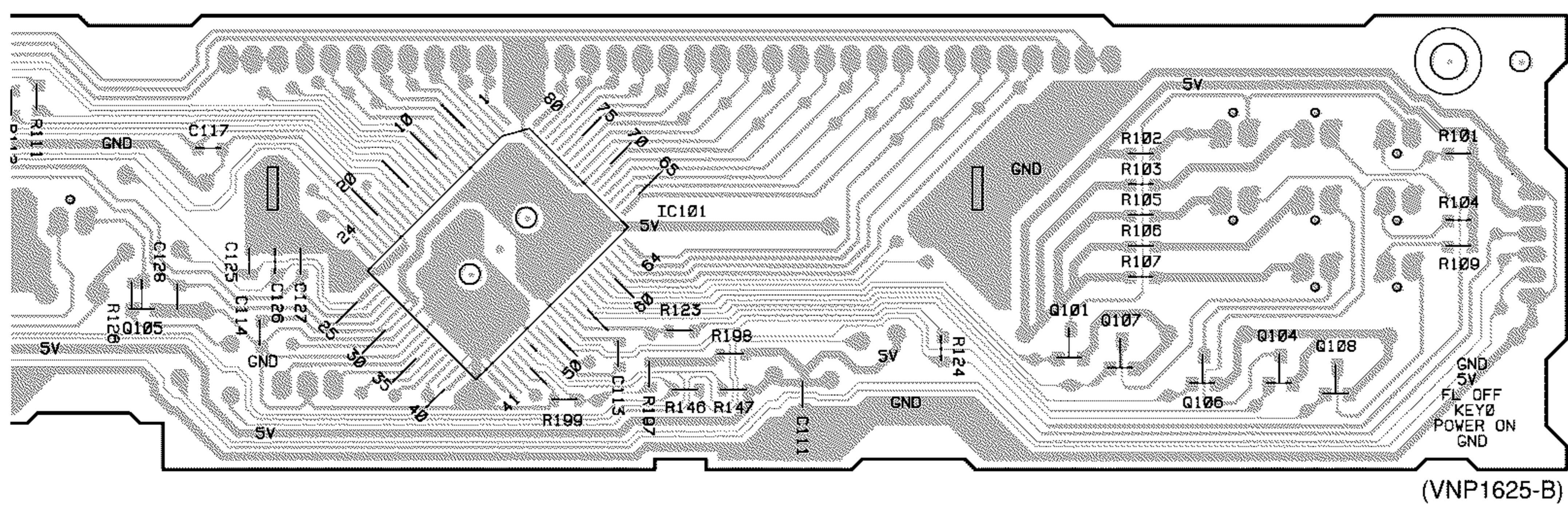
**4.3 FLKB ASSY****SIDE A****E FLKB ASSY****F CN201****SIDE B****E FLKB ASSY**

Q105

**E**



IC102 Q103



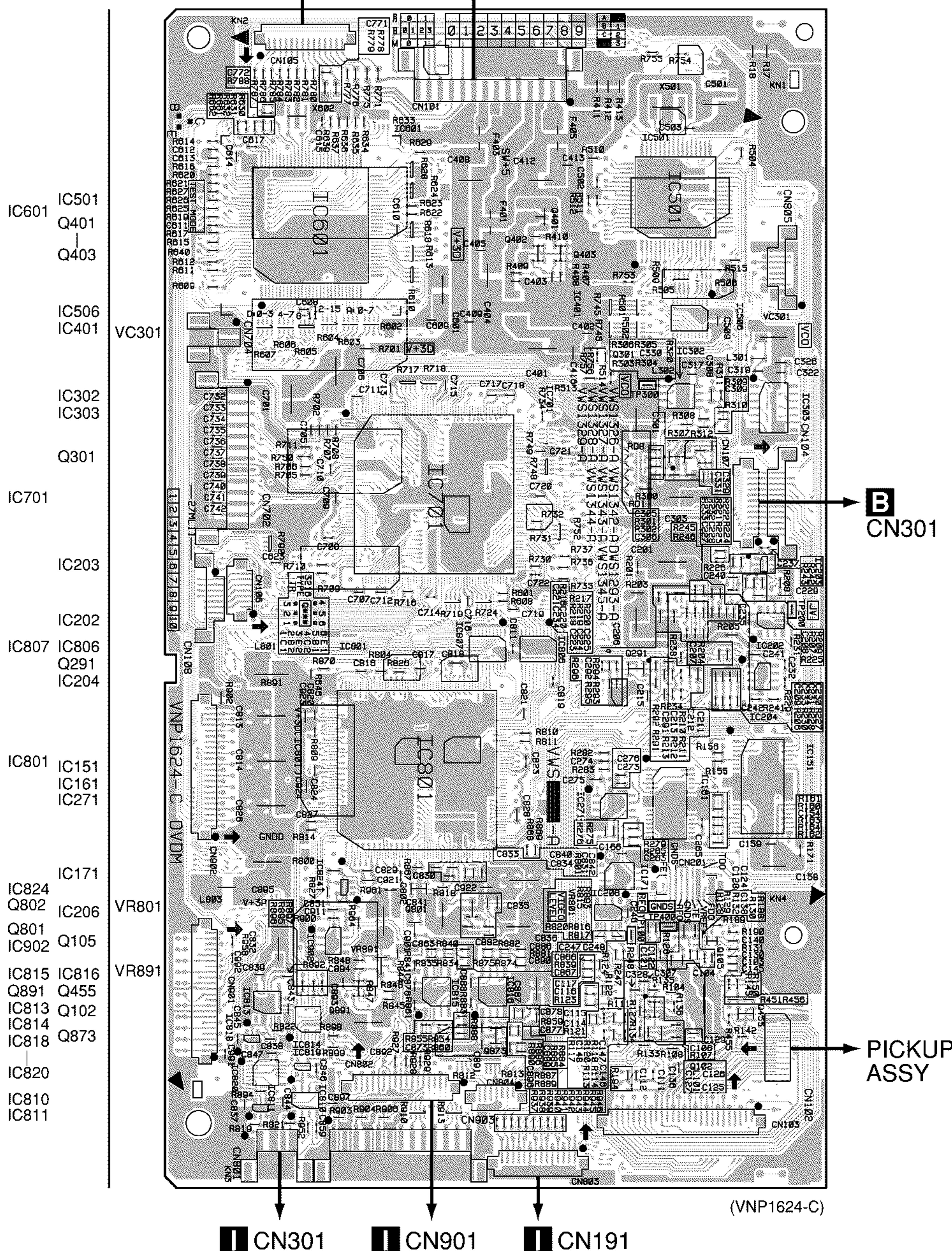
Q105

IC101

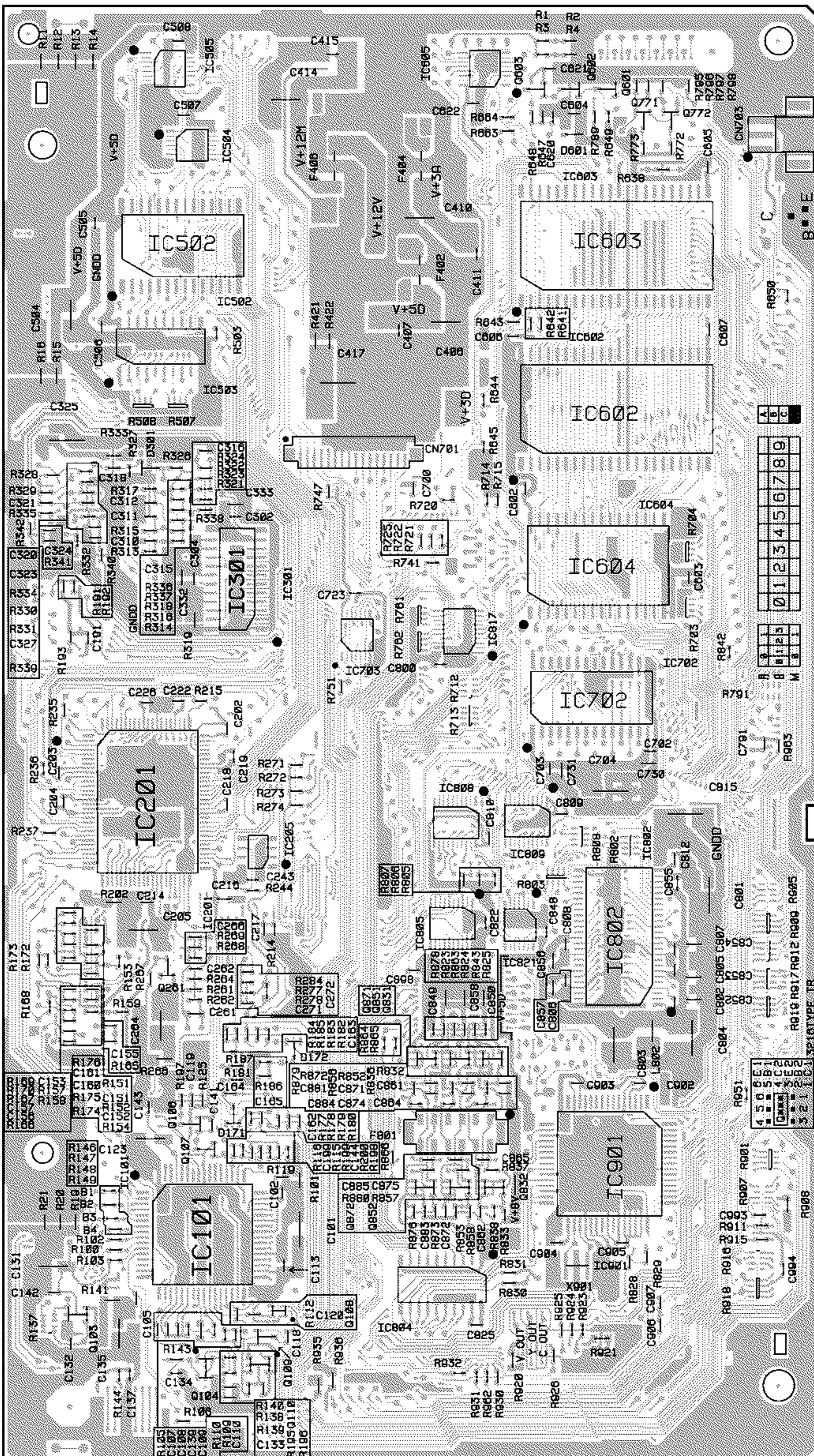
Q101 Q107 Q106 Q104 Q108

## 4.4 DVDM ASSY

• This PCB is a four-layered board. Middle layer is mainly connected to Vcc and GND.



# H DVDM ASSY

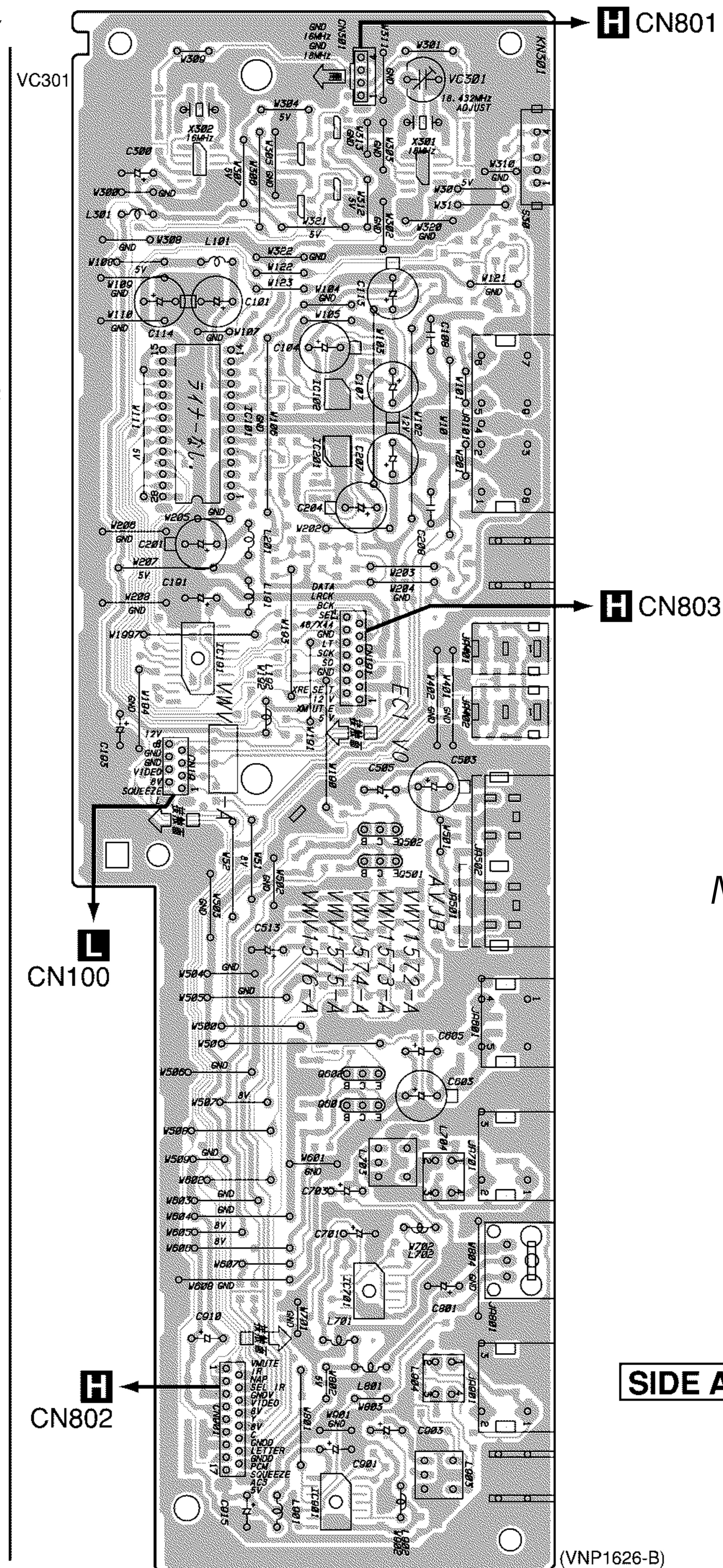


(VNP1624-C)

**SIDE B**

4.5 AVJB ASSY

AVJB ASSY



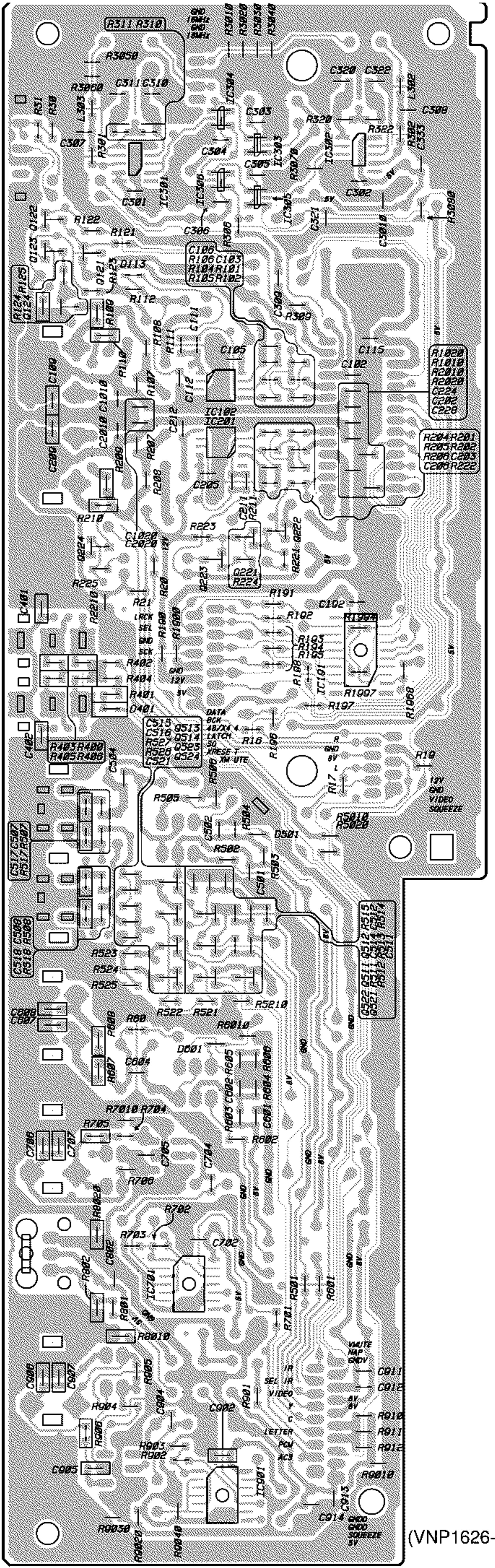
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SIDE A

# I AVJB ASSY

MC-Service

**SIDE B**



IC301  
IC306

Q121  
Q124

IC102

IC201

Q221  
Q224

Q511  
Q514  
Q521  
Q524

IC701

IC901

A

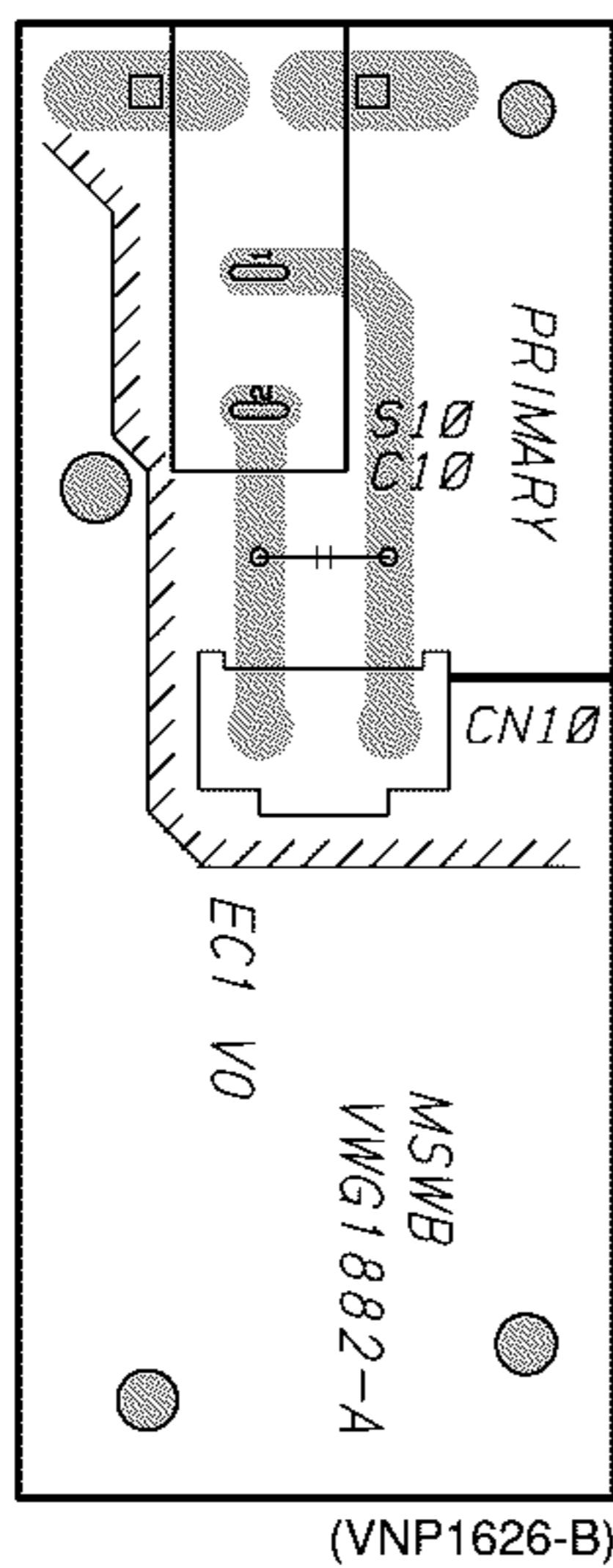
B

C

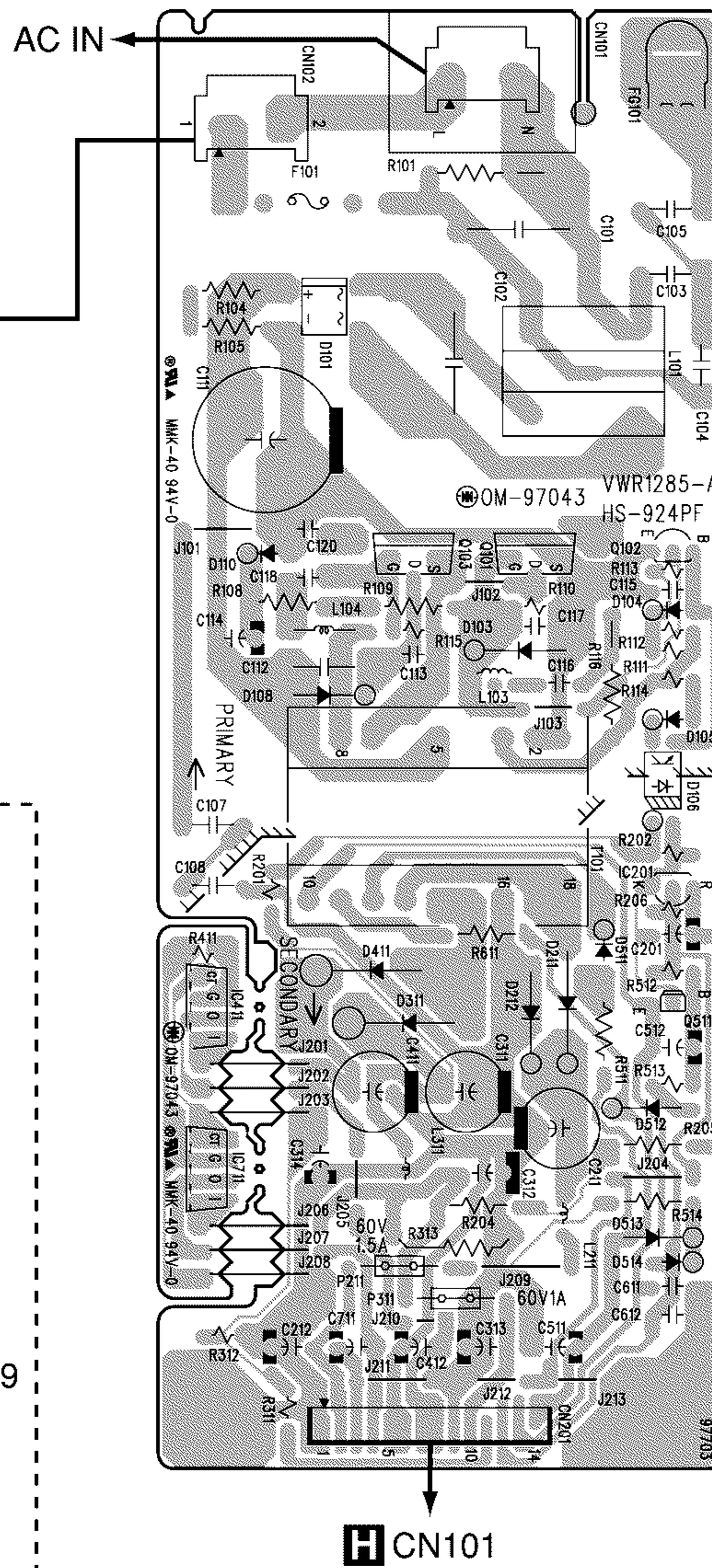
D

## 4.6 POWER SUPPLY, MSWB AND SCCB ASSEMBLIES

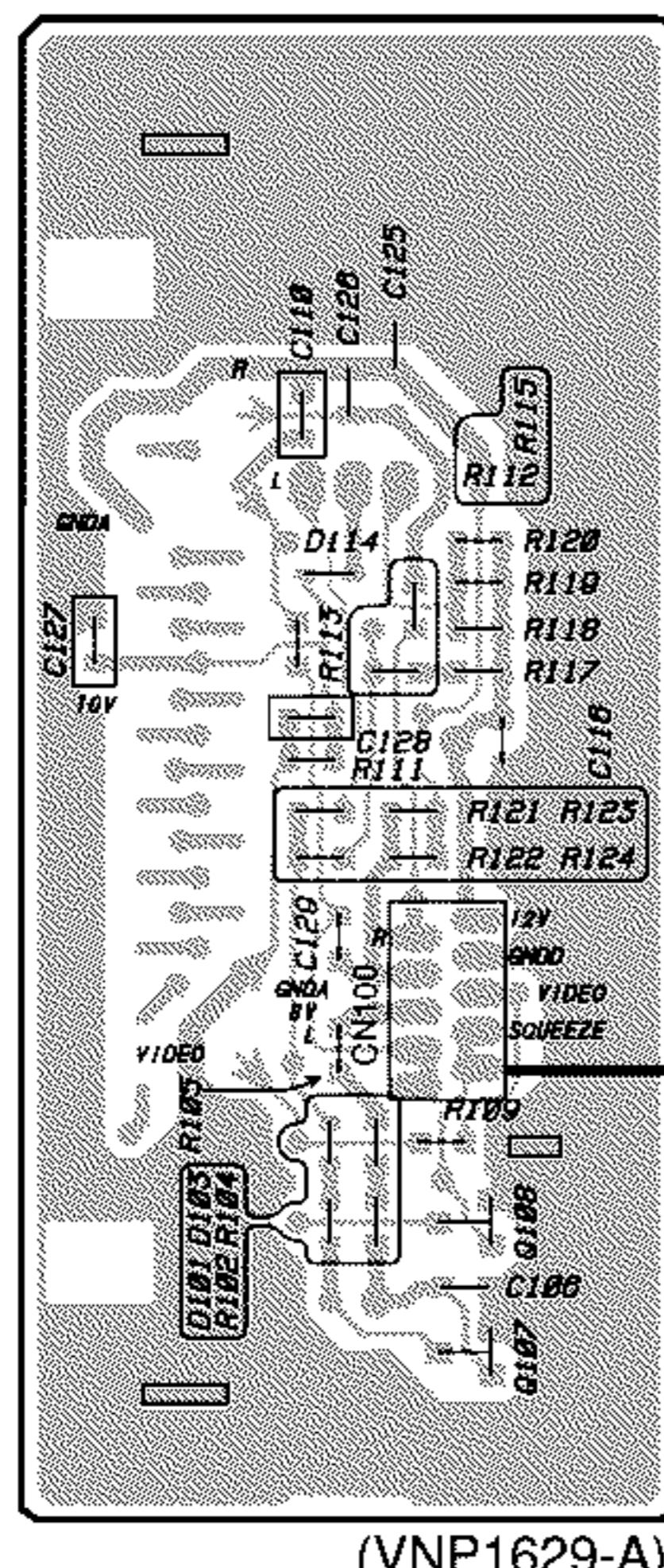
**K** MSWB ASSY



**J** POWER SUPPLY ASSY



**L** SCCB ASSY



SIDE B

WY, WY/RD, WYW/SP ONLY

SIDE A

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## 5. PCB PARTS LIST

NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The  $\Delta$  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

$560 \Omega$	$\rightarrow 56 \times 10^1$	$\rightarrow 561$	RD1/4PU	5   6   1   J
$47k \Omega$	$\rightarrow 47 \times 10^3$	$\rightarrow 473$	RD1/4PU	4   7   3   J
$0.5 \Omega$	$\rightarrow R50$		RN2H	R   5   0   K
$1 \Omega$	$\rightarrow IR0$		RSIP	1   R   0   K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

$5.62k \Omega$	$\rightarrow 562 \times 10^3$	$\rightarrow 5621$	RN1/4PC	5   6   2   1   F
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### 5.1 LIST OF WHOLE PCB ASSEMBLIES

Mark	Symbol and Description	Part No.				Remarks
		DV-505/WY, WY/RD,WYW/SP	DV-505 /RD/RC	DV505 /RAM	DV-505 /RL	
NSP	LOAB ASSY	VWM1798	VWM1798	VWM1798	VWM1798	
NSP	- LOMB ASSY	VWG1886	VWG1886	VWG1886	VWG1886	
NSP	- LOSB ASSY	VWG1885	VWG1885	VWG1885	VWG1885	
NSP	SMEB ASSY	VWM1797	VWM1797	VWM1797	VWM1797	
NSP	- INSB ASSY	VWG1883	VWG1883	VWG1883	VWG1883	
NSP	- FGSB ASSY	VWG1884	VWG1884	VWG1884	VWG1884	
NSP	FLKY ASSY	VWM1792	VWM1824	VWM1821	VWM1791	
	- FLKB ASSY	VWG1876	VWG1940	VWG1934	VWG1875	
NSP	PWSB ASSY	VWG1937	VWG1880	VWG1880	VWG1880	
NSP	- DILB ASSY	VWG1881	VWG1881	VWG1881	VWG1881	
NSP	JKSB ASSY	VWM1796	VWM1795	VWM1795	VWM1795	
	- AVJB ASSY	VWV1575	VWV1574	VWV1574	VWV1574	
	- MSWB ASSY	VWG1882	VWG1882	VWG1882	VWG1882	
$\Delta$	DVDM ASSY	VWS1326	VWS1326	VWS1326	VWS1326	
	POWER SUPPLY ASSY	VWR1285	VWR1285	VWR1285	VWR1285	
	SCCB ASSY	VWV1577	Not used	Not used	Not used	

### FLKB ASSY

VWG1876, VWG1940, VWG1934 and VWG1875 are constructed the same except for the following :

Mark	Symbol and Description	Part No.				Remarks
		VWG1876	VWG1940	VWG1934	VWG1875	
	R118 – R120 R128 R138	RS1/10S620J RS1/10S273J RS1/10S203J	RS1/10S360J RS1/10S163J RS1/10S272J	RS1/10S360J RS1/10S273J RS1/10S683J	RS1/10S360J RS1/10S473J RS1/10S623J	

### PWSB ASSY

VWG1937 and VWG1880 are constructed the same except for the following :

Mark	Symbol and Description	Part No.		Remarks
		VWG1937	VWG1880	
	R201	RS1/10S181J	RS1/10S751J	

**AVJB ASSY**

VWV1575 and VWV1574 are constructed the same except for the following :

Mark	Symbol and Description	Part No.		Remarks
		VWV1575	VWV1574	
	IC191 L191 C191 C192  R16,R17,R19 – R21,R60 R1968 R1994,R1997 CN19 8P FFC CONNECTOR	PD0236AM LAU220J CEAT101M10 CKSQYF104Z25  RS1/10S0R0J RS1/10S471J Not used VKN1239	Not used Not used Not used Not used  Not used Not used RS1/10S0R0J Not used	

**5.2 PARTS LIST FOR DV-505/WY**

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
<b>LOAB ASSY</b>				<b>D</b>	<b>FGSB ASSY</b>		
<b>OTHERS</b>					<b>SEMICONDUCTOR</b>		
PC BOARD LOAB		VNP1628		PC101			GP2S27(B)
<b>A LOMB ASSY</b>				<b>RESISTORS</b>			
<b>OTHERS</b>				All Resistors			RS1/10S□□□□J
CN401 KR CONNECTOR		B2B-PH-K-S		<b>OTHERS</b>			
				CN101 KR CONNECTOR 3P			B3B-PH-K-S
<b>B LOSB ASSY</b>				<b>E FLKB ASSY</b>			
<b>SWITCH</b>				<b>SEMICONDUCTORS</b>			
S301		VSK1011		IC101			PD4890A
<b>OTHERS</b>				IC102			S-806D
CN303 KR CONNECTOR		B2B-PH-K-S		Q103			DTD113ES
CN302 8P FFC CONNECTOR		VKN1268		D112			EP05Q04
CN301 12P FFC CONNECTOR		VKN1272		<b>SWITCHES</b>			
				S102-S106			RSG1030
<b>SMEB ASSY</b>				<b>CAPACITORS</b>			
<b>OTHERS</b>				C101,C102			CEJA470M6R3
PC BOARD SMEB		VNP1627		C117,C125-C128			CKSQYB102K50
				C111-C114			CKSQYF104Z25
<b>C INSB ASSY</b>				<b>RESISTORS</b>			
<b>SWITCH</b>				All Resistors			RS1/10S□□□□J
S201		DSG1017		<b>OTHERS</b>			
<b>OTHERS</b>				CN103 FJ CONNECTOR 4P			04P-FJ
CN201 KR CONNECTOR 3P		B3B-PH-K-S		CN102 FJ CONNECTOR 6P			06P-FJ
PCB BINDER		DEF1012		REMOTE RECEIVER UNIT			GP1U28X
CN202 8P FFC CONNECTOR		VKN1239		V101 FL TUBE			VAW1046
				SPACER			VEC1599
				CN101 14P FFC CONNECTOR			VKN1274
				FL HOLDER			VNF1087
				X101 CERAMIC RESONATOR			VSS1104 (5MHz)

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
<b>F</b>	PWSB ASSY				IC817		TC74VHCT541AFT
	SEMICONDUCTORS				IC811,IC818,IC819		TC7SHU04F
	Q201		PDTA124EK		IC810		TC7WU04F
	D202		SLP4118C51H		IC301		TLC5540INS
	D201		SLP9118C51H		IC603		VYW1536
<b>SWITCH</b>				△	Q401		2SB1260
	S202		RSG1030		Q108		HN1K03FU
<b>RESISTORS</b>					Q455,Q831,Q832,Q851,Q852		IMT1A
	All Resistors		RS1/10S□□□J		Q871,Q872		IMT1A
<b>OTHERS</b>					Q103,Q402,Q873		IMX1
	CN201 FJ CONNECTOR 6P		06R-FJ		Q102,Q104,Q291,Q301		IMZ1A
					Q106,Q603		PDTA114EK
					Q107,Q109,Q261,Q602		PDTC114EK
					Q601,Q771,Q772		PDTC114TK
					D301		KV1410
					D171,D172		MA152WK
					D601		RB501V-40
<b>G</b>	DILB ASSY						
	SEMICONDUCTOR						
	D301		MA111				
<b>OTHERS</b>							
	CN301 FJ CONNECTOR 4P		04R-FJ		F771,F778,F779 CHIP BEAD		DTF1067
	PL301 LAMP (DVD ILUM.)		VEL1022		L941,L942,L945,L946		QTL1011
					CHIP SOLID INDUCTOR		
					F896 FERRITE BEAD		VTF1077
					F801 VIDEO FILTER		VTF1098
					F401-F406 CHIP EMI FILTER		VTH1037
					L301 CHIP COIL (1.5mH)		VTL1059
					L101,L302 CHIP COIL (10mH)		VTL1061
					L802,L803 CHIP COIL		VTL1067
					L335,L340,L342 CHIP BEAD		VTL1074
					L777,L780-L787,L895		VTL1075
					CHIP BEAD		
					L897-L899 CHIP BEAD		VTL1075
<b>H</b>	DVDM ASSY						
	SEMICONDUCTORS						
	IC171		BA10393F		C623		CCSRCH100D50
	IC161		BA6195FP		C152,C208,C291,C612,C613		CCSRCH101J50
	IC151		BA6797FP		C700,C735,C737,C739		CCSRCH101J50
	IC813		CY2081SL-611		C897,C898		CCSRCH101J50
	IC702		HM514800CJ-7		C111,C139,C215,C231,C232		CCSRCH151J50
	IC101		LA9700M		C248		CCSRCH151J50
	IC201		LC78650NE		C125,C148,C329		CCSRCH180J50
	IC802		MB811171622A-100FN		C112,C118		CCSRCH220J50
	IC801		MB86371		C121,C130,C199,C319,C324		CCSRCH330J50
	IC815,IC816		MC14577CF		C120		CCSRCH331J50
	IC271,IC302		NJM2100M		C310,C323,C327		CCSRCH470J50
	IC203		NJM2107F		C230		CCSRCH471J50
	IC901		PD2058A		C126,C331,C838		CCSRCH560J50
	IC601		PD3381A		C127,C330,C863,C873,C882		CCSRCH5R0C50
	IC701		PD4833A		C160		CCSRCH680J50
	IC501		PD4889A		C401		CEV101M10
	IC502		SRM2B256SLMX70		C101,C104,C201,C325,C601		CEV101M6R3
△	IC401		TA78M08F		C701,C704,C706,C801		CEV101M6R3
	IC202,IC204,IC206,IC902		TC4W53F		C803,C804,C813-C815,C826		CEV101M6R3
	IC604		TC551001BFL-85		C901		CEV101M6R3
	IC503		TC74HC573AF		C123,C158,C264,C412,C414		CEV220M16
	IC804		TC74HCT541AF		C835,C895		CEV221M4
	IC303		TC74HCU04AF		C131,C135,C205,C206,C301		CEV470M6R3
	IC807,IC808		TC74LCX245FT		C303,C404,C406,C408,C410		CEV470M6R3
	IC821		TC74VHC00FT		C501,C504,C832,C836,C841		CEV470M6R3
	IC814,IC820		TC74VHC02FT				
	IC505,IC605		TC74VHC139FT				
	IC504		TC74VHC20FT				
	IC805,IC806,IC809		TC74VHC541FT				
	IC506		TC74VHCT245AFT				

<b>Mark</b>	<b>No.</b>	<b>Description</b>	<b>Part No.</b>	<b>Mark</b>	<b>No.</b>	<b>Description</b>	<b>Part No.</b>
C887			CEV470M6R3		R920,R921,R935,R936,R961		RS1/10S0R0J
C211			CKSQYB104K25		R205		RS1/10S101J
C109,C124,C216,C220,C229			CKSQYB105K10		R835,R839,R855,R859,R875		RS1/16S1001F
C234,C261,C275,C308,C326			CKSQYB105K10		R881		RS1/16S1001F
C332,C333,C730,C731			CKSQYB105K10		R834,R854,R874		RS1/16S1201F
C818,C823,C828			CKSQYF105Z16				RS1/16S1500F
C213,C292,C309,C321			CKSRYB102K50		R823-R825		RS1/16S1501F
C105,C106,C108,C146,C147			CKSRYB103K50		R117,R118		RS1/16S1502F
C151,C154-C157,C161,C207			CKSRYB103K50		R126		RS1/16S2202F
C217,C221,C247,C263,C265			CKSRYB103K50		R241,R247		RS1/16S2702F
C276,C318,C320,C620,C705			CKSRYB103K50		R110,R153,R155,R173,R174		
C722,C772,C859			CKSRYB103K50				RS1/16S2702F
C143,C162-C165,C223,C224			CKSRYB104K16		R213,R228,R229,R248		RS1/16S4702F
C242,C273,C274,C311,C312			CKSRYB104K16		R152,R156,R158-R164		RS1/16S4702F
C315			CKSRYB104K16		R167-R170,R172,R175,R194		RS1/16S4702F
C141			CKSRYB222K50		R227		RS1/16S4702F
C328			CKSRYB223K25		VR801 (1kΩ)		VCP1125
C262,C271			CKSRYB472K50		Other Resistors		RS1/16S□□□J
C122			CKSRYB473K16				
C102,C103,C113,C129			CKSRYF104Z16				
C132-C134,C136,C137,C159			CKSRYF104Z16				
C166,C191,C202-C204,C209			CKSRYF104Z16				
C214,C218,C219,C222			CKSRYF104Z16				
C226-C228,C235,C237,C241			CKSRYF104Z16				
C246,C302,C304,C305,C317			CKSRYF104Z16				
C322,C402,C403,C405,C407			CKSRYF104Z16				
C409,C411,C413,C415			CKSRYF104Z16				
C502,C503,C505-C509			CKSRYF104Z16				
C602-C605,C608-C611			CKSRYF104Z16				
C614,C615,C617,C621,C622			CKSRYF104Z16				
C702,C703,C707-C721			CKSRYF104Z16				
C732-C734,C736,C738			CKSRYF104Z16				
C740-C742,C771,C791,C800			CKSRYF104Z16				
C802,C805-C812,C816,C817			CKSRYF104Z16				
C819-C822,C824,C825,C827			CKSRYF104Z16				
C829,C830,C833,C834,C837			CKSRYF104Z16				
C839,C840,C842-C848			CKSRYF104Z16				
C861,C862,C867,C871,C872			CKSRYF104Z16				
C876,C878,C881,C883			CKSRYF104Z16				
C888-C890,C902-C905,C911			CKSRYF104Z16				
C852,C855,C857 (2.2μF/6.3V)			VCG1030				
C858,C922-C924 (2.2μF/6.3V)			VCG1030				
VC301 (40pF)			VCM1010				

**RESISTORS**

R752	RA4C101J
R507,R508,R624,R628,R633	RA4C103J
R703,R704,R717,R718	RA4C103J
R745,R746,R761,R762,R792	RA4C103J
R812,R813	RA4C103J
R137,R501,R502,R505,R506	RA4C220J
R604-R607,R712,R713,R719	RA4C220J
R724,R748,R749,R791	RA4C220J
R802,R803,R808	RA4C220J
R602,R603,R610,R613,R618	RA4C470J
R101,R11-R14,R141	RS1/10S0R0J
R15-R17,R171,R18	RS1/10S0R0J
R201-R203,R266,R300,R319	RS1/10S0R0J
R333,R411-R413,R701	RS1/10S0R0J
R775,R776,R891,R893	RS1/10S0R0J

**OTHERS**

CN101	PH CONNECTOR	S14B-PH-SM3
CN801	PH CONNECTOR	S4B-PH-SM3
TP100,TP200,TP300,TP400	CHECKER CHIP	VKF1001
CN201	B TO B CONNECTOR 14P	VKN1324
CN106	7P FFC CONNECTOR	VKN1411
CN107	12P FFC CONNECTOR	VKN1416
CN105,CN803	14P FFC CONNECTOR	VKN1418
CN802	17P FFC CONNECTOR	VKN1421
CN102	20P FFC CONNECTOR	VKN1445
KN1-KN3	EARTH METAL LABEL	VNF1109
X602	CHIP CERAMIC RESONATOR (20MHz)	VRW1634
X501	CHIP CERAMIC RESONATOR (10MHz)	VSS1114
X901	CHIP CERAMIC RESONATOR (24MHz) IC SOCKET FOR IC603	VSS1115
		VSS1118
		VKH1012

**I AVJB ASSY  
SEMICONDUCTORS**

IC102,IC201	BA4560F
IC191	PD0236AM
IC101	PD2029A(L)
IC901	TC74HCU04AF
IC304-IC306	TC7S02F
IC303	TC7S04F
IC301,IC302	TC7WU04F
Q123,Q223	2PB709A
Q514	2PD601A
Q501,Q502,Q601,Q602	2SC1740S
Q124,Q224	2SD2114K
Q523,Q524	PDTA124EK
Q121,Q122,Q221,Q222	PDTA124EK
Q521,Q522	PDTA124EK
D401,D501,D601	MA111
D113	UDZS6.2B

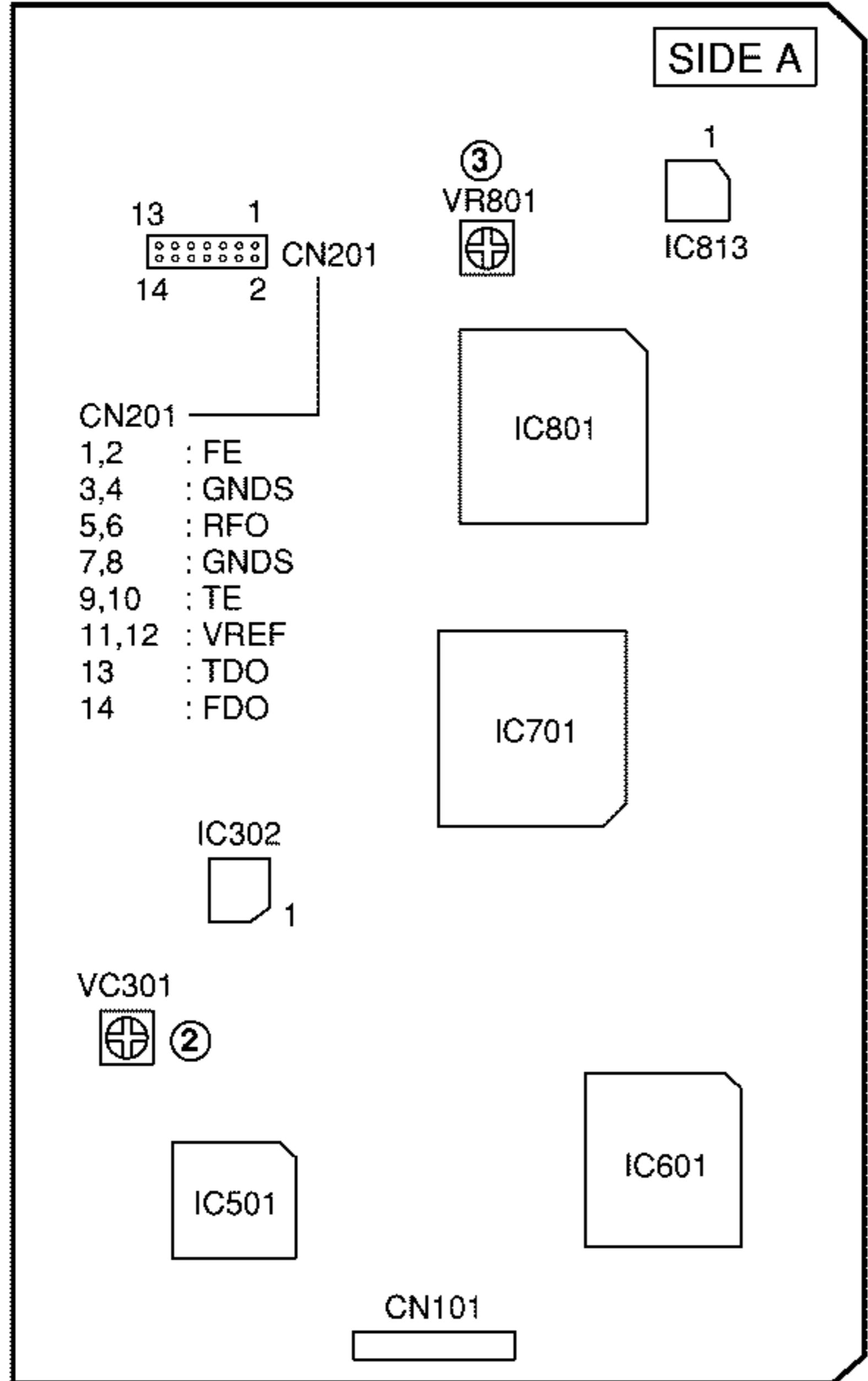
Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
<b>COILS</b>							
L101,L191,L201,L301,L801			LAU220J	J		<b>POWER SUPPLY ASSY</b>	
L901			LAU220J			<b>SEMICONDUCTORS</b>	
L903 PULSE TRANS.			PTL1003	△	IC201		AN1431T
L902 NOISE FILTER			RTF1167	△	IC411		VZF1048
L302,L303 CHIP BEAD			VTL1098	△	IC711		VZF1060
				△	Q101,Q103		VZF1062
				△	Q102		2SC3377
<b>SWITCH</b>							
S30			VSH1020		Q511		2SC1740S
<b>CAPACITORS</b>							
C103,C203			CCSQCH820J50	△	D511		10ELS2
C310,C322			CCSQCH120J50		D512,D514		1SS270A
C320			CCSQCH270J50	△	D105		1SS270A
C311			CCSQCH330J50	△	D104		MTZJ2.4B
C106,C111,C206,C211			CCSQCH470J50		D513		MTZJ8.2B
C307,C308			CCSQCH470J50	△	D106		PS2561L1-1VM
C114,C191,C193,C801,C901			CEAT101M10	△	D103		RD18FB2
C903			CEAT101M10	△	D311		S3L20U
C503,C603			CEAT102M6R3	△	D101		VZF1044
C300			CEAT470M16		D108,D110		VZF1045
C101,C201			CEAT471M16	△	D211		VZF1058
C107,C207			CEGA470M25	△	D411		VZF1059
C104,C113,C204			CEZA470M25	△	D212		VZF1061
C112,C212,C224,C904			CKSQYF103Z50				
C102,C105,C115,C192,C202			CKSQYF104Z25				
C205,C228,C301-C306,C309			CKSQYF104Z25	△	P311	FUSE (1A)	VEK1041
C321,C333,C401,C502,C511			CKSQYF104Z25	△	P211	FUSE (1.5A)	VEK1048
C516,C602,C802,C902,C906			CKSQYF104Z25	△	F101	FUSE (2A)	VEK1049
C911-C913			CKSQYF104Z25				
C108,C208			CQMBA332J50				
VC301 (20pF)			VCM-008				
<b>RESISTORS</b>							
R508,R518,R607			RN1/10SC75R0D				
R106,R111,R206,R211			RN1/10SE4702D				
Other Resistors			RS1/10S□□□J				
<b>OTHERS</b>							
CN501 4P MINI DIN SOCKET			AKP7008				
CN301 KR CONNECTOR			B4B-PH-K-S				
JA101 4P PIN JACK			DKB1038				
JA801 OPTICAL MODULE			GP1F32T				
JA401 REMOTE CONTROL			RKN1004				
JACK							
JA601 PCB BINDER			VEF1040				
JA901 1P PIN JACK			VKB1063				
JA901 1P PIN JACK (NI,BLK)			VKB1077				
CN19 8P FFC CONNECTOR			VKN1239				
CN191 14P FFC CONNECTOR			VKN1245				
CN901 17P FFC CONNECTOR			VKN1248				
SCREW TERMINAL			VNE1948				
KN301 EARTH METAL			VNF1084				
X302 CRYSTAL (16MHz)			VSS1081				
X301 CRYSTAL (18.432MHz)			VSS1116				
<b>K MSWB ASSY</b>							
<b>SWITCH</b>							
	△	S10					ASG1006
<b>CAPACITOR</b>							
	△	C10 (0.01μ/AC250V)					ACG7010
<b>OTHERS</b>							
CN10 AC CORD SOCKET							RKP1751
<b>L SCCB ASSY</b>							
<b>SEMICONDUCTORS</b>							
Q100							2SA933S
Q107,Q108							PDTC124EK
D114							MA111
D101,D103							UDZS5.1B
<b>CAPACITORS</b>							
C110,C126							CCSQCH271J50
C106,C116,C125,C128							CKSQYF104Z25
<b>RESISTORS</b>							
R109							RN1/10SC75R0D
Other Resistors							RS1/10S□□□J
<b>OTHERS</b>							
JA100 PCB BINDER							VEF1040
CN100 RGB CONNECTOR							VKB1037
CN100 8P FFC CONNECTOR							VKN1239
PC BOARD (SCCB)							VNP1629

## 6. ADJUSTMENT

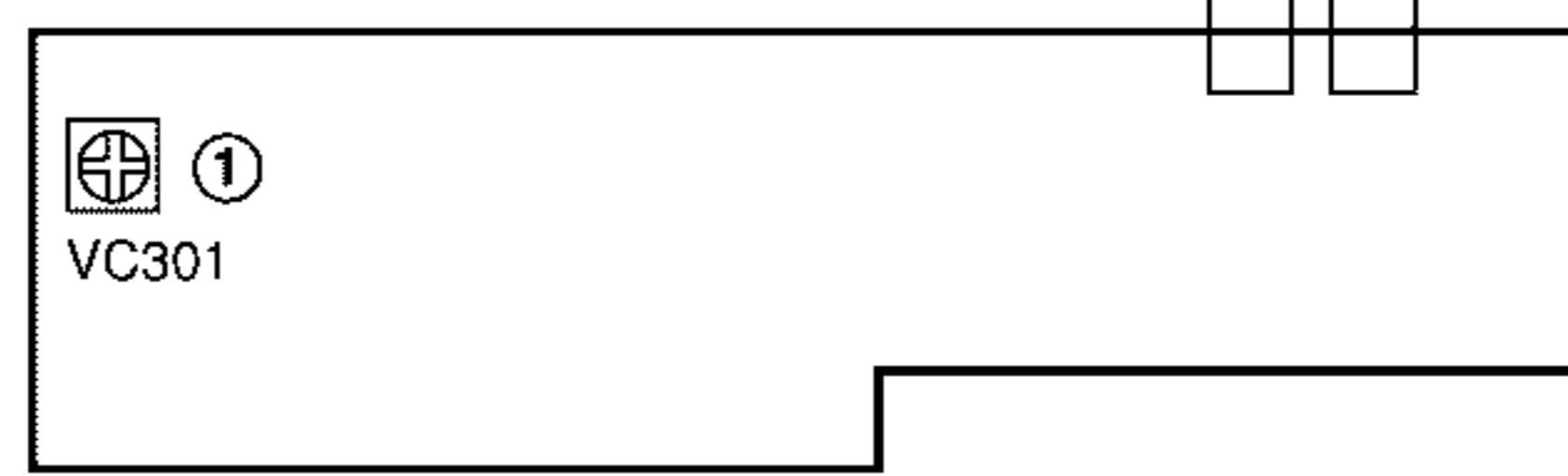
### 6.1 ADJUSTMENT ITEMS AND LOCATION

#### ■ Adjustment Points (PCB Part)

DVDM ASSY



AVJB ASSY



#### ■ Adjustment Items

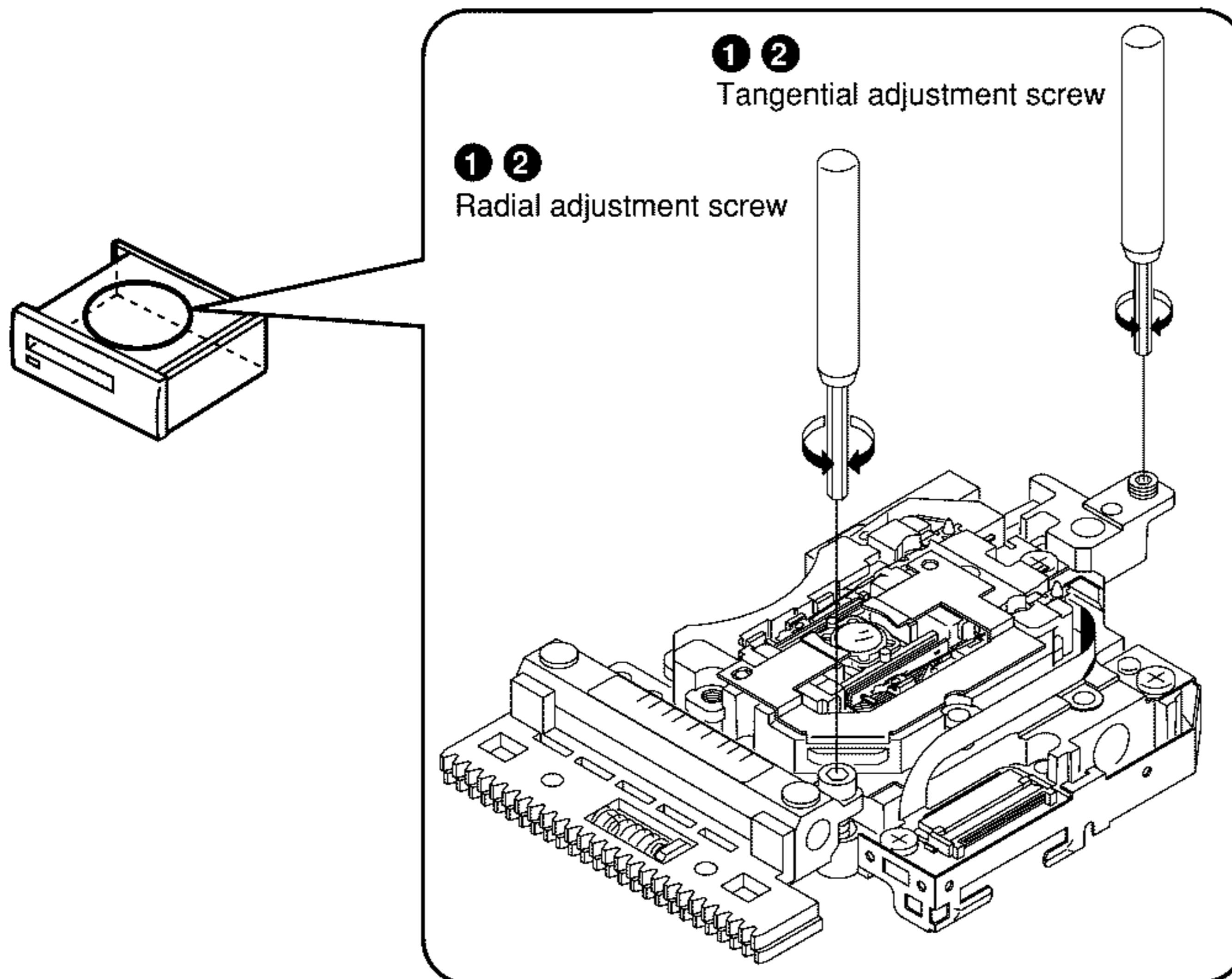
##### [Mechanical Part]

- ① Tangential Skew and Radial Skew Coarse Adjustment
- ② DVD Jitter Adjustment

##### [Electrical Part]

- ① 18MHz Master Clock Adjustment
- ② VCO Offset Adjustment
- ③ Video Output Level Adjustment

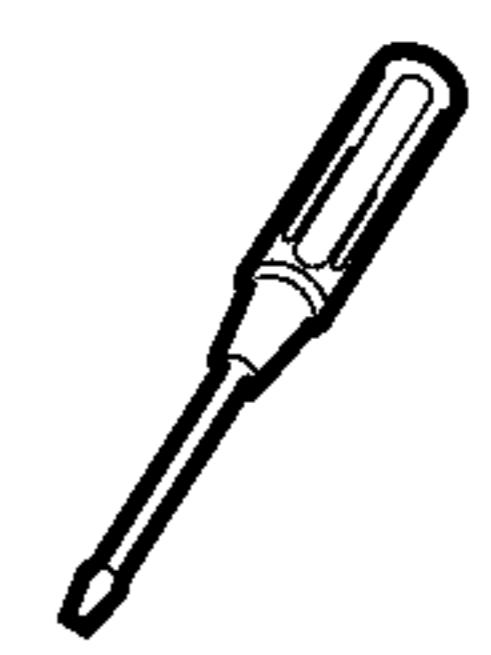
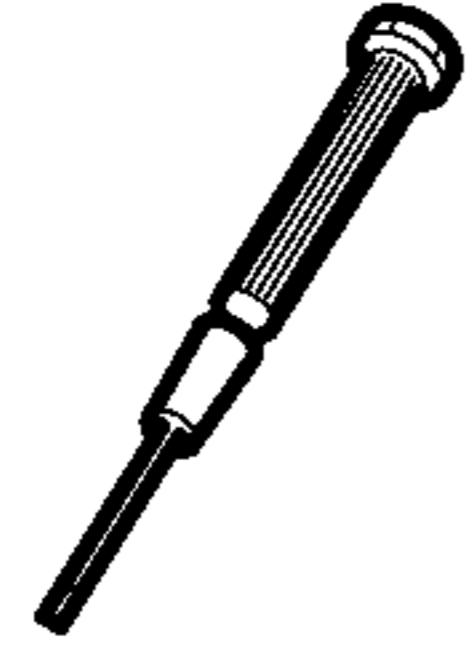
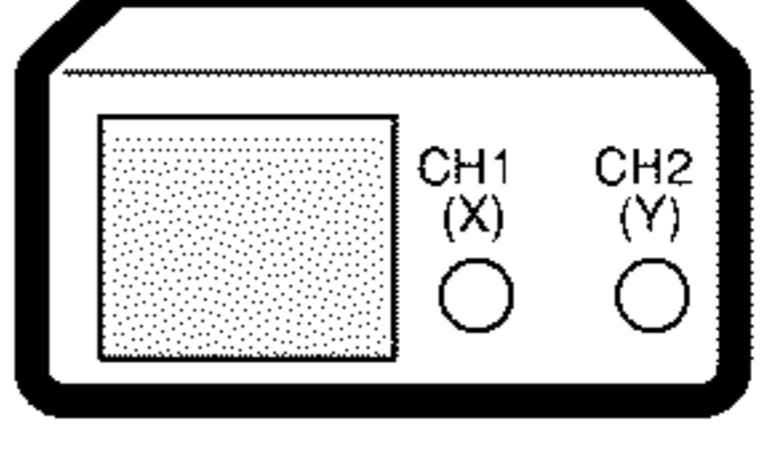
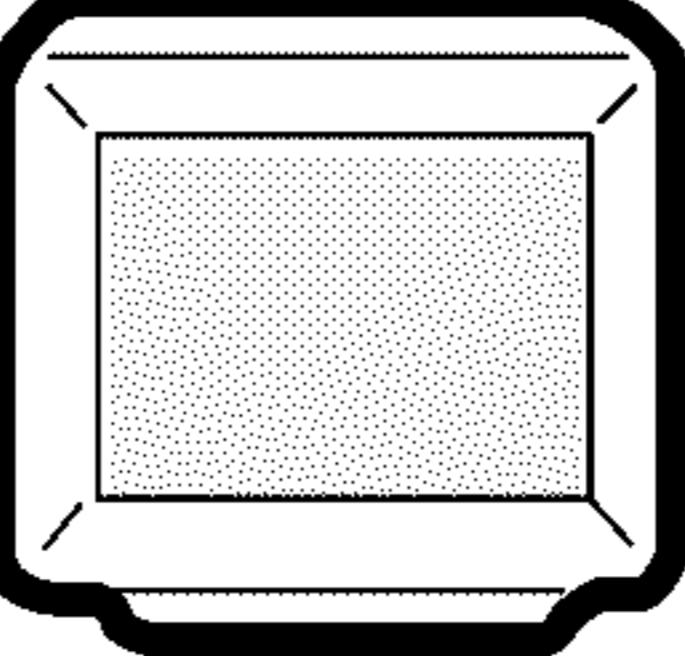
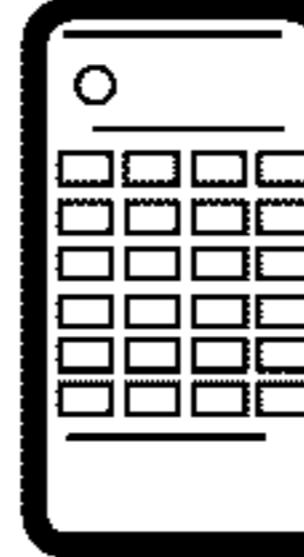
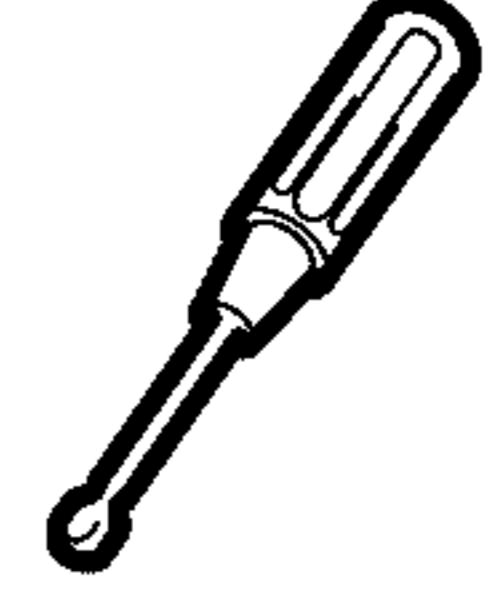
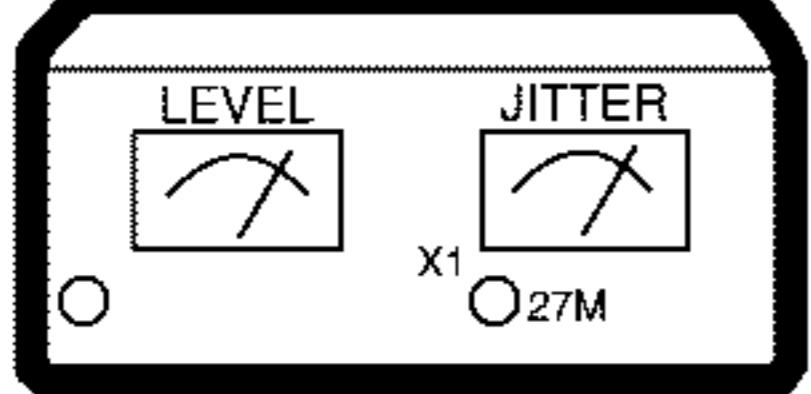
#### ■ Adjustment Points (Mechanism Part)



Note 1:  
Remove the tray when adjusting the tangential and radial adjustment screws.

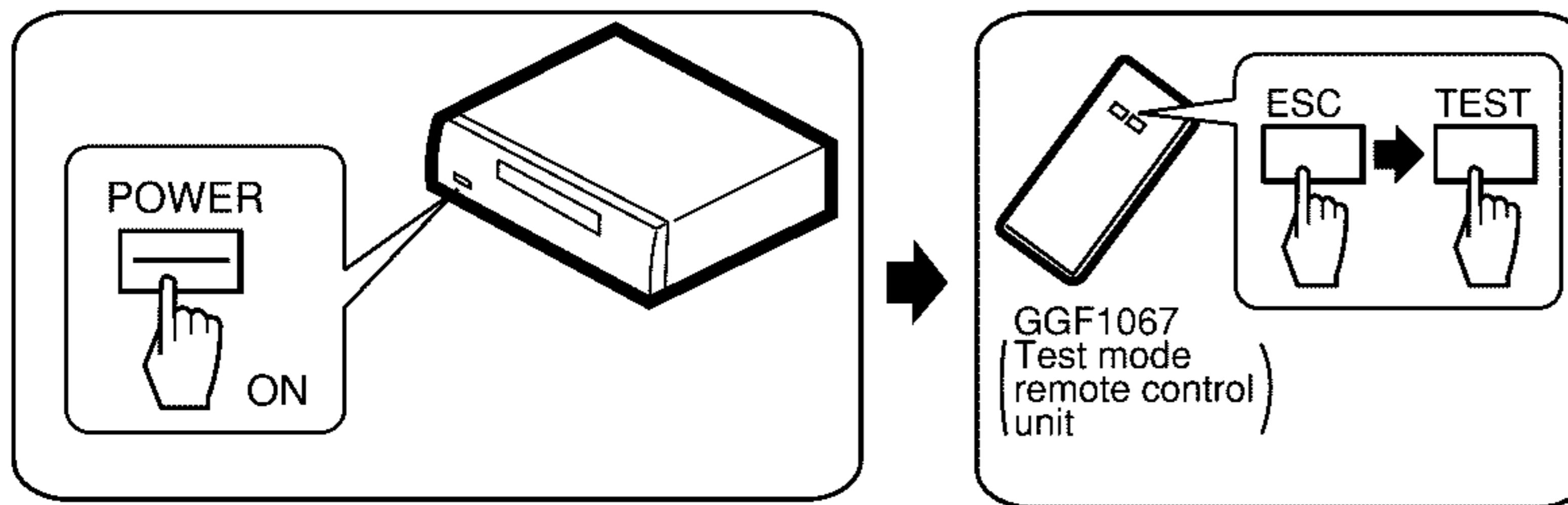
Note 2:  
After the adjustment, stabilize the screw with an adhesive.

## 6.2 JIGS AND MEASURING INSTRUMENTS

			
CD test disc (ABEX-784)	DVD test disc (DVD-MJK1)	⊖ Screwdriver (medium)	⊖ Screwdriver (small)
			 Dual-trace oscilloscope (with delay) Frequency band $\geq 40\text{MHz}$
⊖ Precise screwdriver	⊕ Screwdriver (large)	⊕ Screwdriver (medium)	
 Frequency counter Display digit $\geq 8$	 TV monitor	 Test mode remote control unit (GGF1067)	 Hexagonal screwdriver
 Jitter Meter	 Equalizer Unit		

## 6.3 TEST MODE

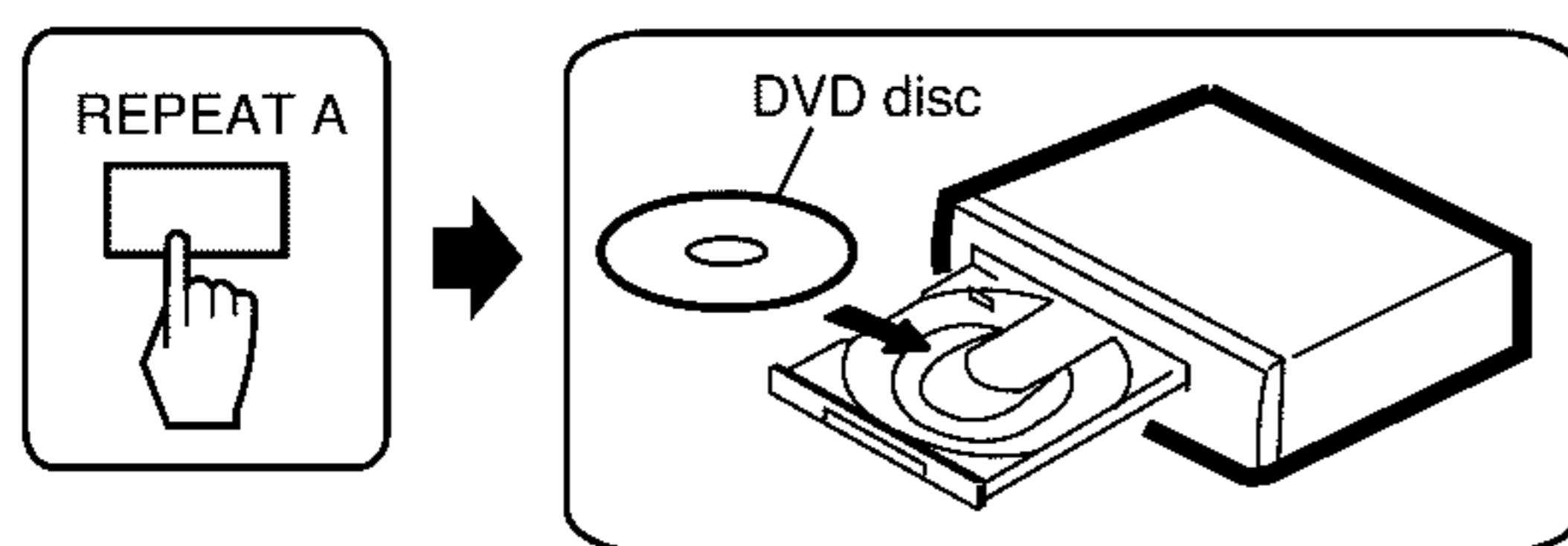
## TEST MODE: ON



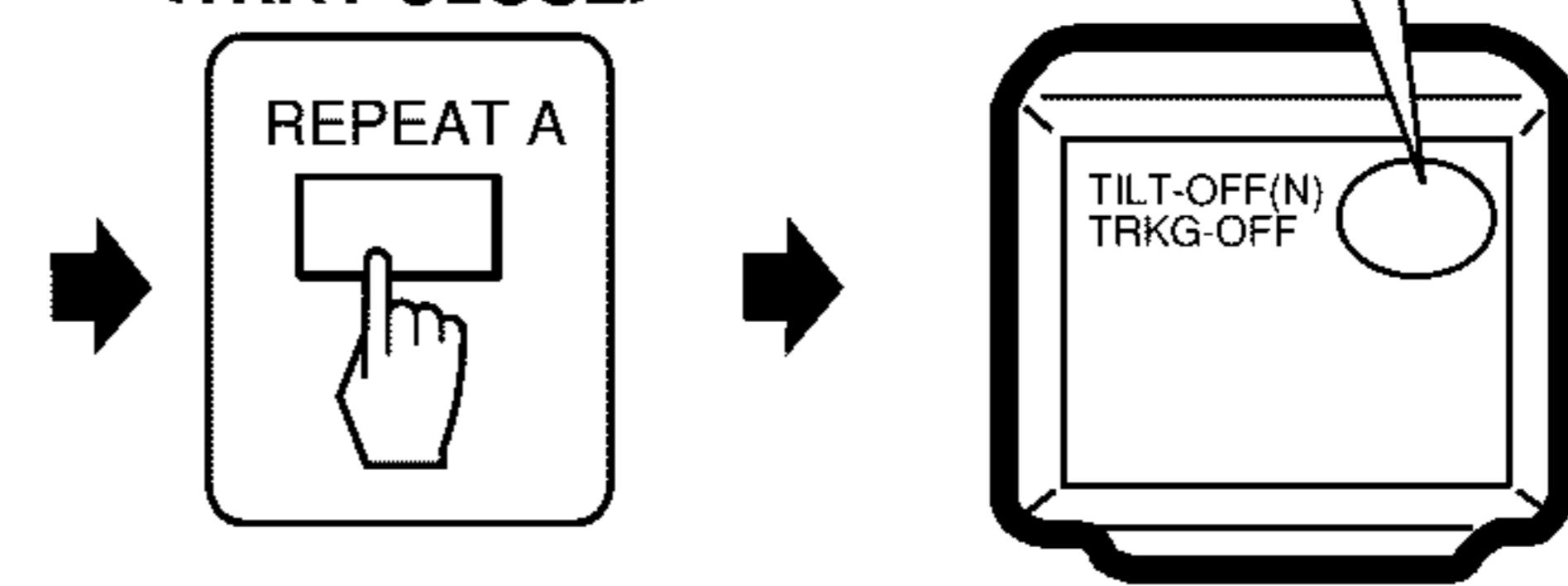
## TEST MODE: DISC SET

- With TRAY

## &lt;TRAY OPEN&gt;

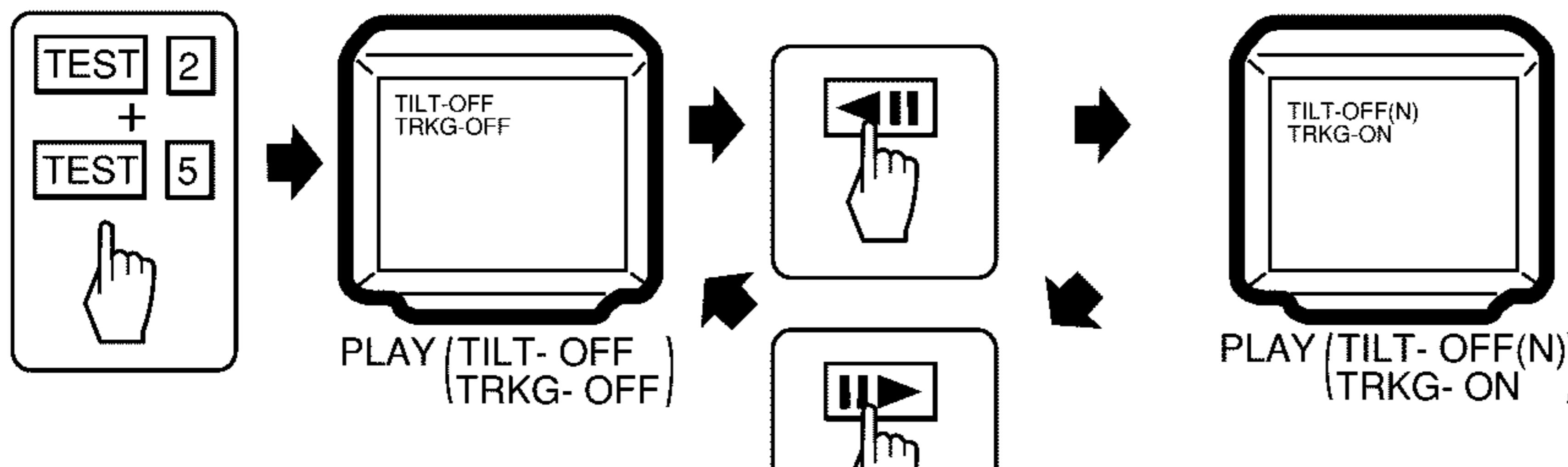


## &lt;TRAY CLOSE&gt;

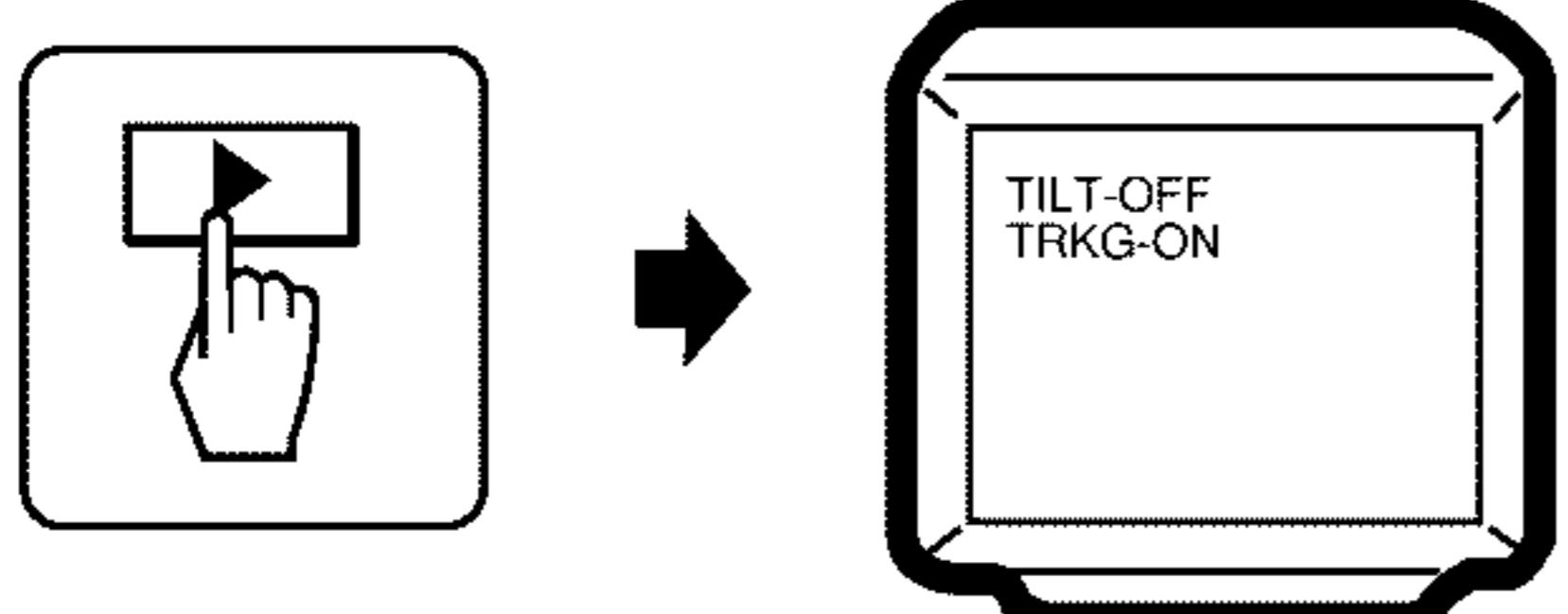


## TEST MODE: PLAY

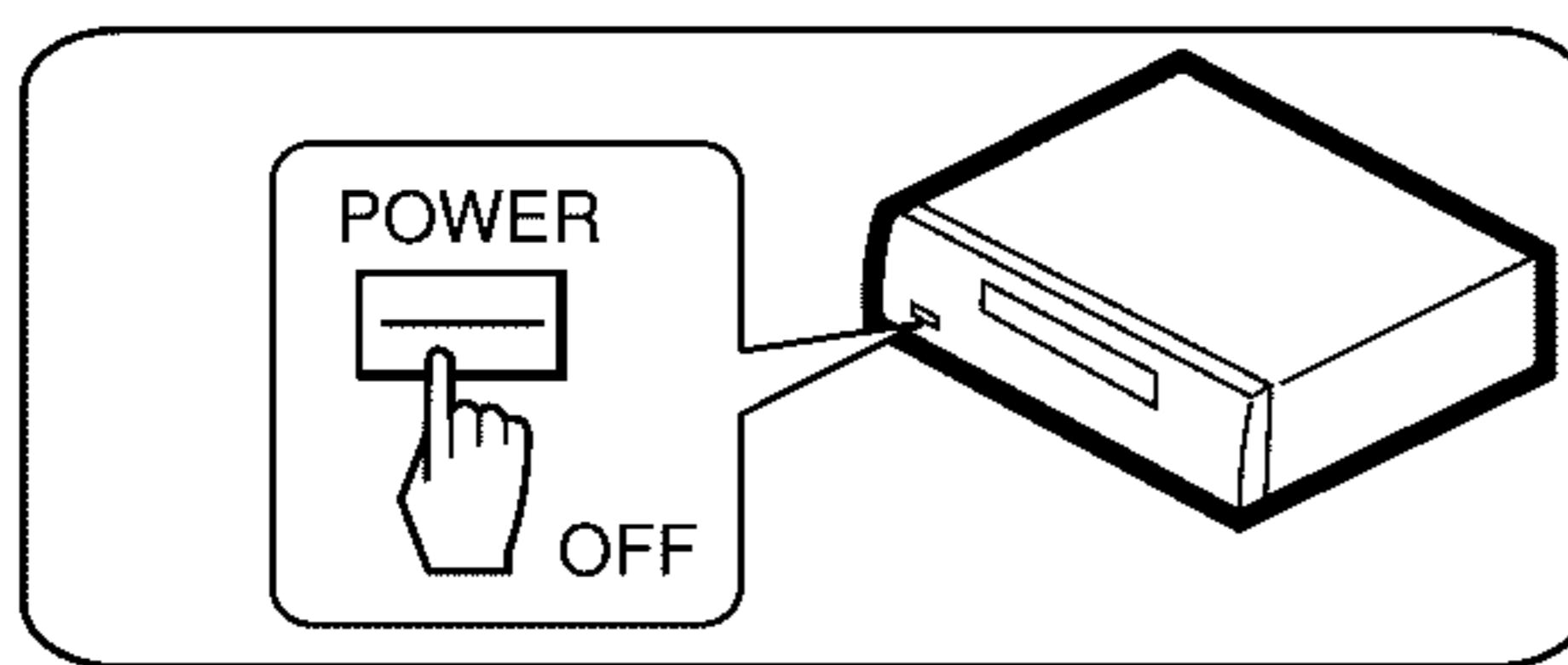
## &lt;TRACKING OFF PLAY&gt;



## &lt;TRACKING ON PLAY&gt;



## TEST MODE: OFF



## 6.4 NECESSARY ADJUSTMENT POINTS

When

### ■ EXCHANGE MECHANISM ASSY PARTS

Exchange pickup



Mechanical point

①, ②

Electric point

Exchange spindle motor



Mechanical point

\_\_\_\_\_

Electric point

\_\_\_\_\_

### ■ EXCHANGE PCB ASSY

Exchange board  
AVJB ASSY



Mechanical point

\_\_\_\_\_

Electric point

\_\_\_\_\_

Note : ① is adjusted already.

Exchange board  
DVDM ASSY



Mechanical point

\_\_\_\_\_

Electric point

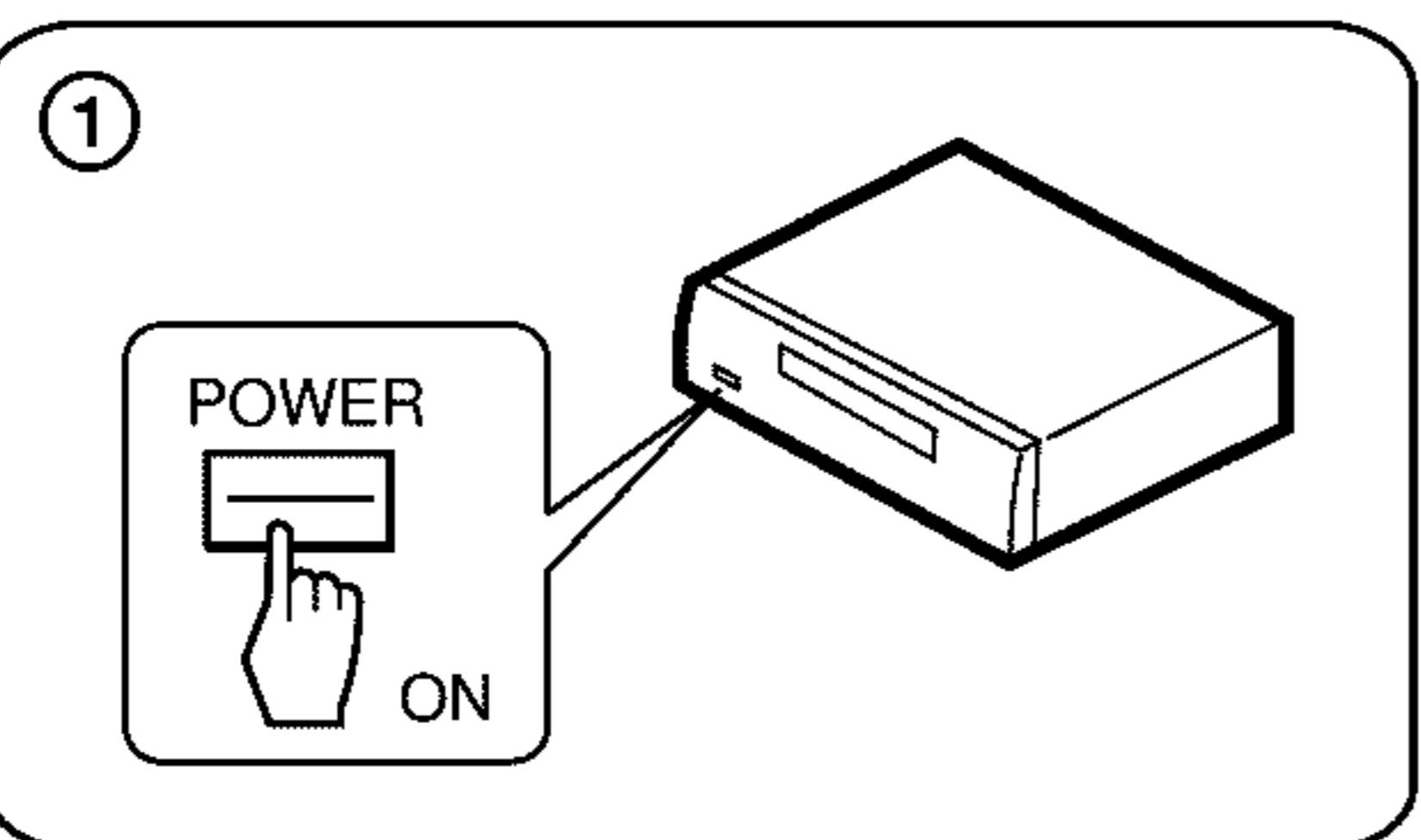
\_\_\_\_\_

Note : ② and ③ are adjusted already.

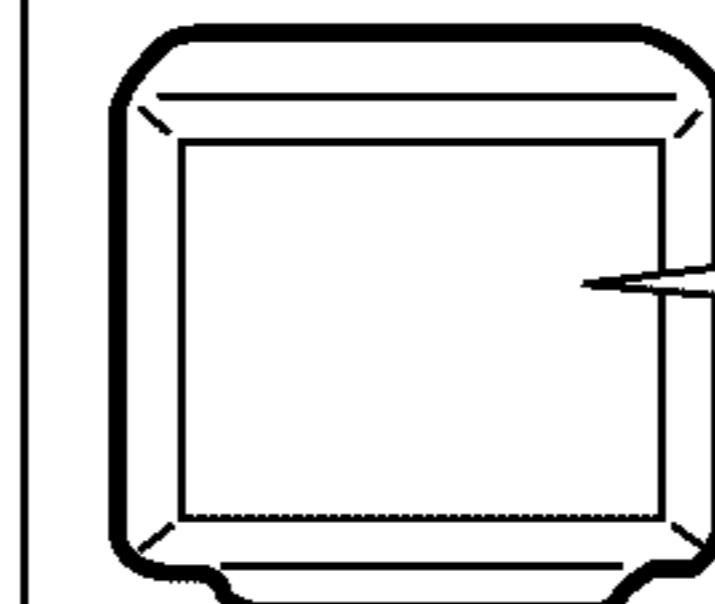
When replacing the FLASH MEMORY (IC603) on the DVDM Assy, follow the "6.5 REGION SETTING".

## 6.5 REGION SETTING

Perform this operation after confirming the region number of each destination on the cover.  
Region number decided once can be changed never again.



② Ask the Region.



[ Player's Region Setting ]

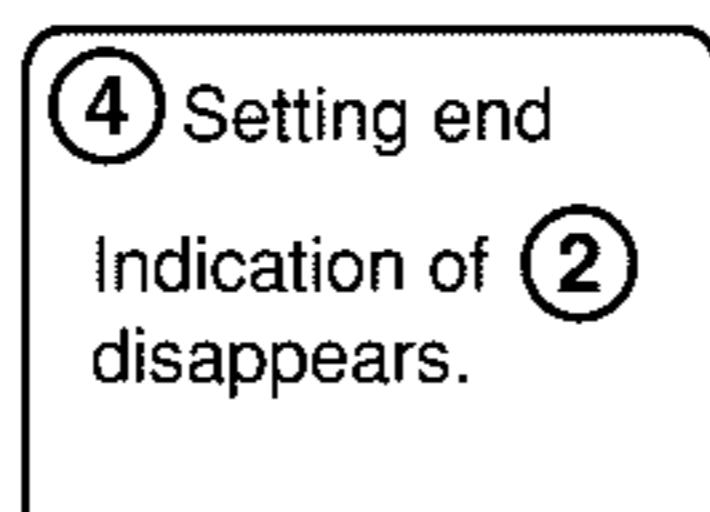
< 2 > : Region 2

< 4 > : Region 4

≡ Pick out any one of these ! ≡  
(Blinking)

Note : Region is decided by destination of the player automatically, and there is a case when it doesn't ask on this screen. There is not need of this setting at that occasion.

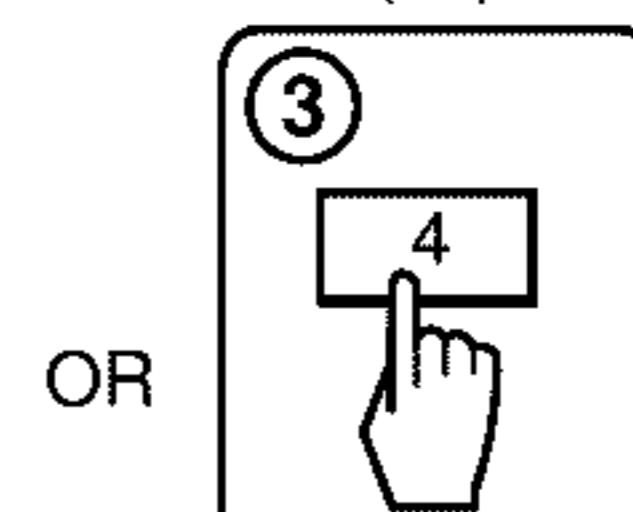
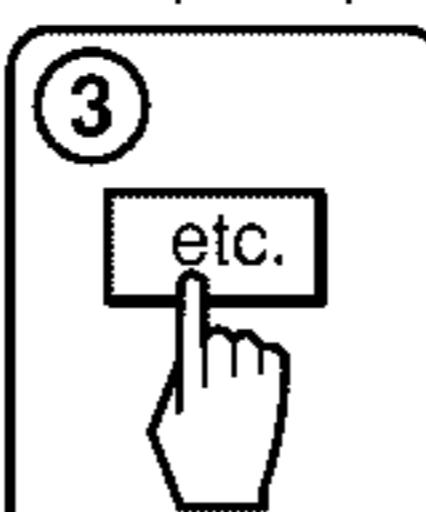
MC-Service



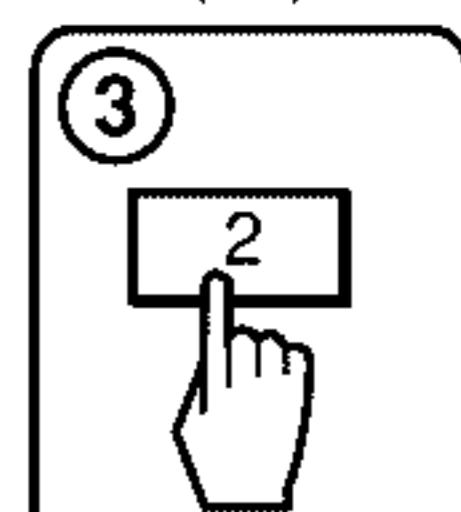
< etc. >

< 4 >

< 2 >



OR

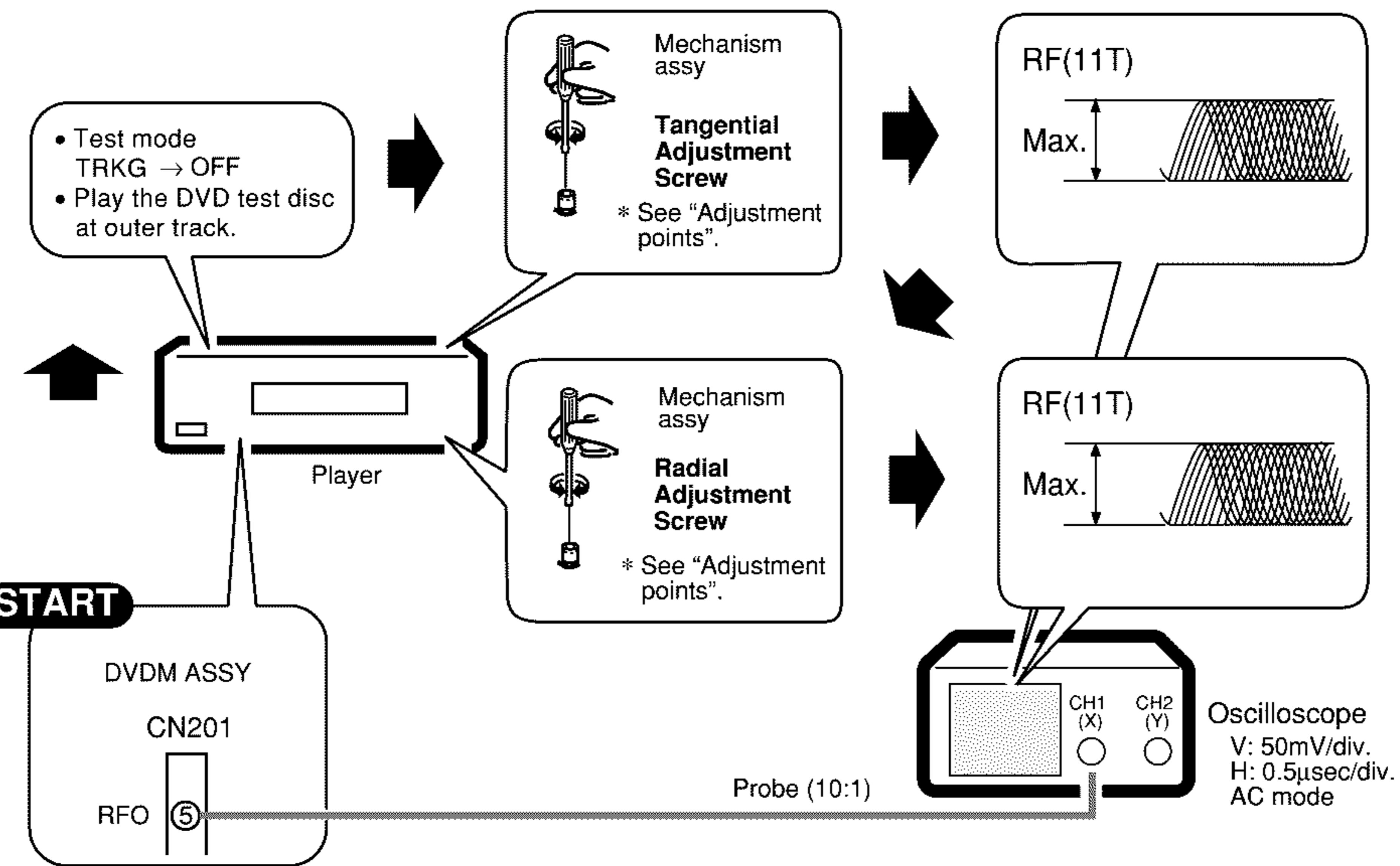


OR

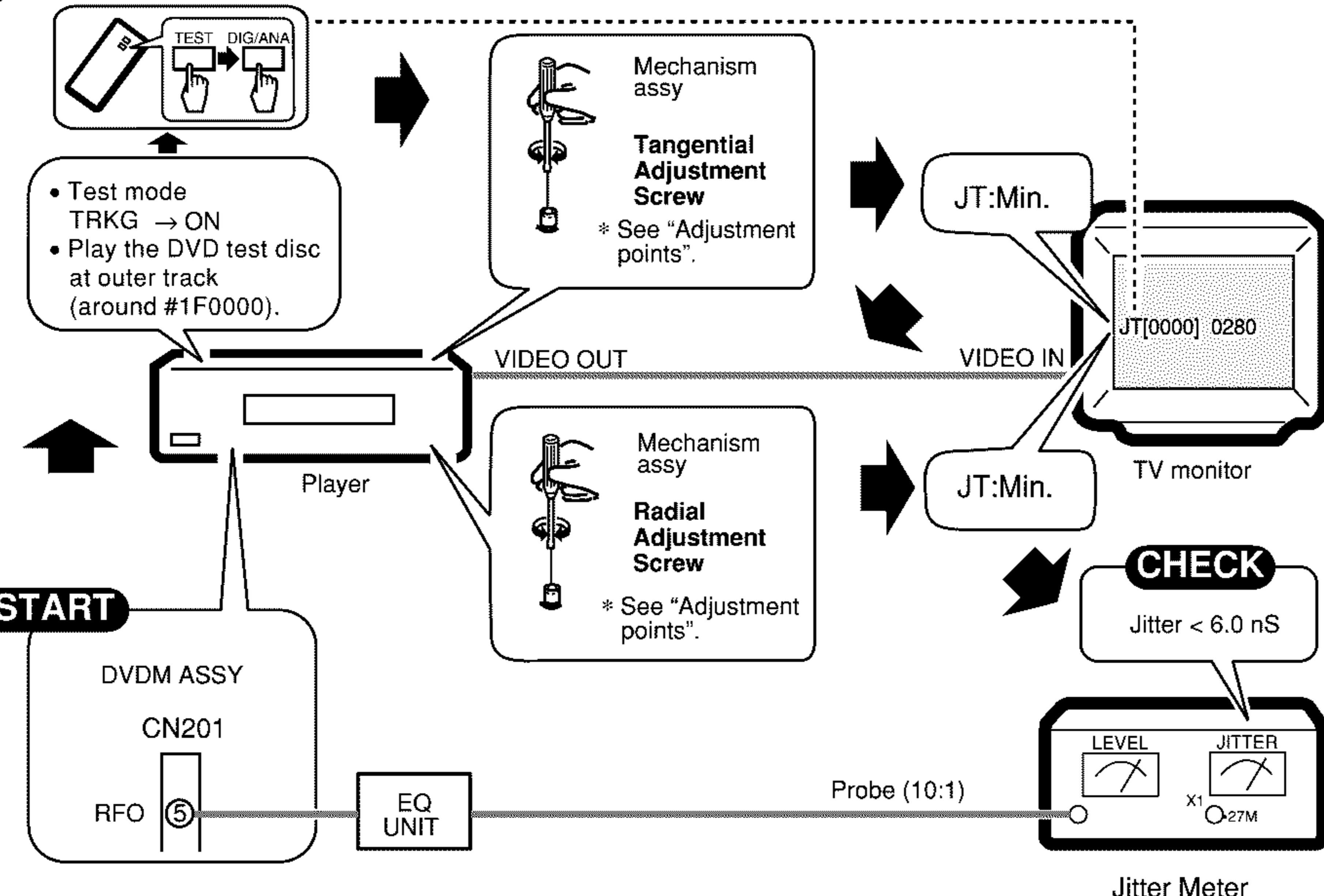
Key input the number with the test mode remote control unit (GGF1067).

## 6.6 MECHANICAL ADJUSTMENT

### ① Tangential Skew and Radial Skew Coarse Adjustment

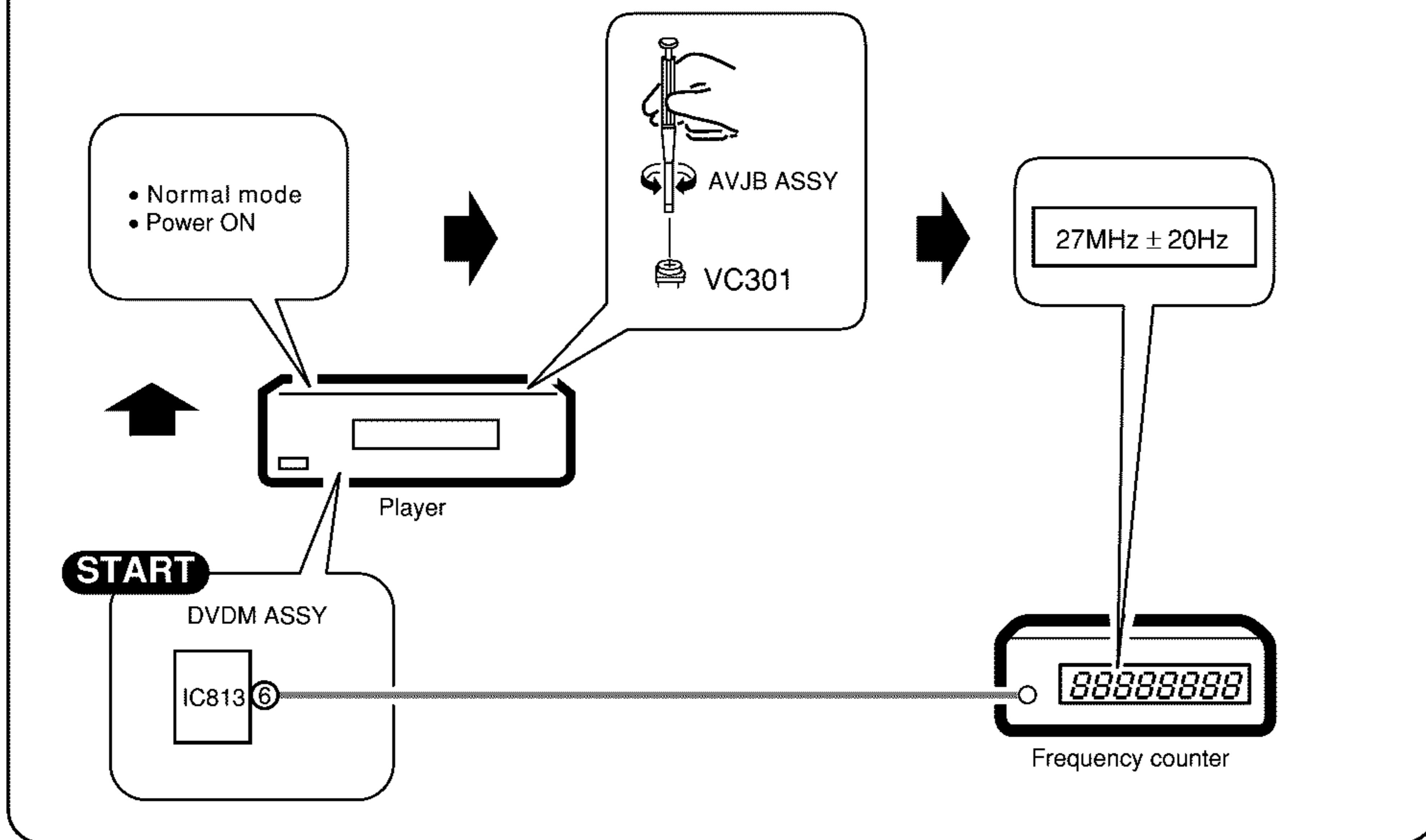


### ② DVD Jitter Adjustment

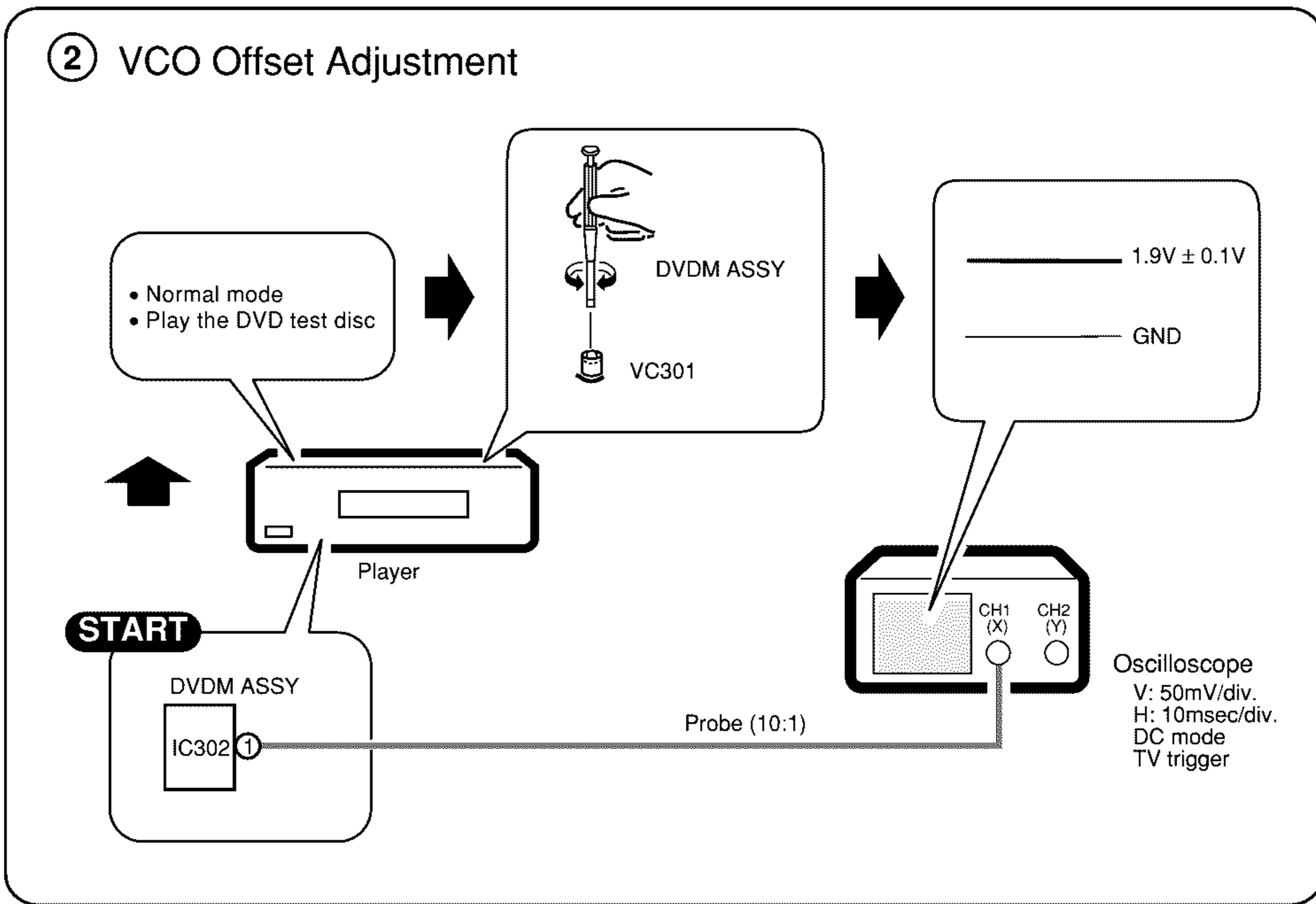


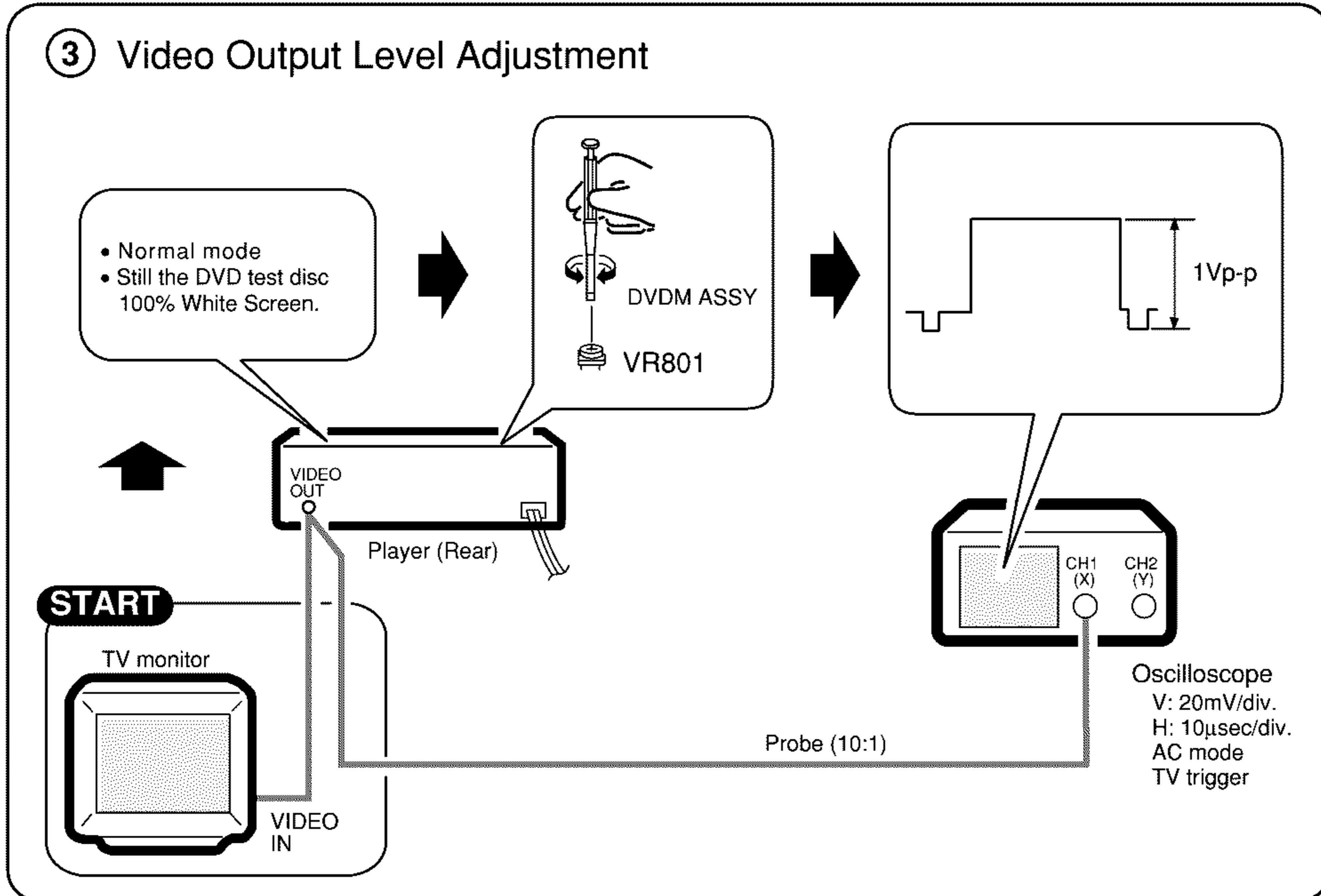
## 6.7 ELECTRICAL ADJUSTMENT

### ① 18MHz Master Clock Adjustment



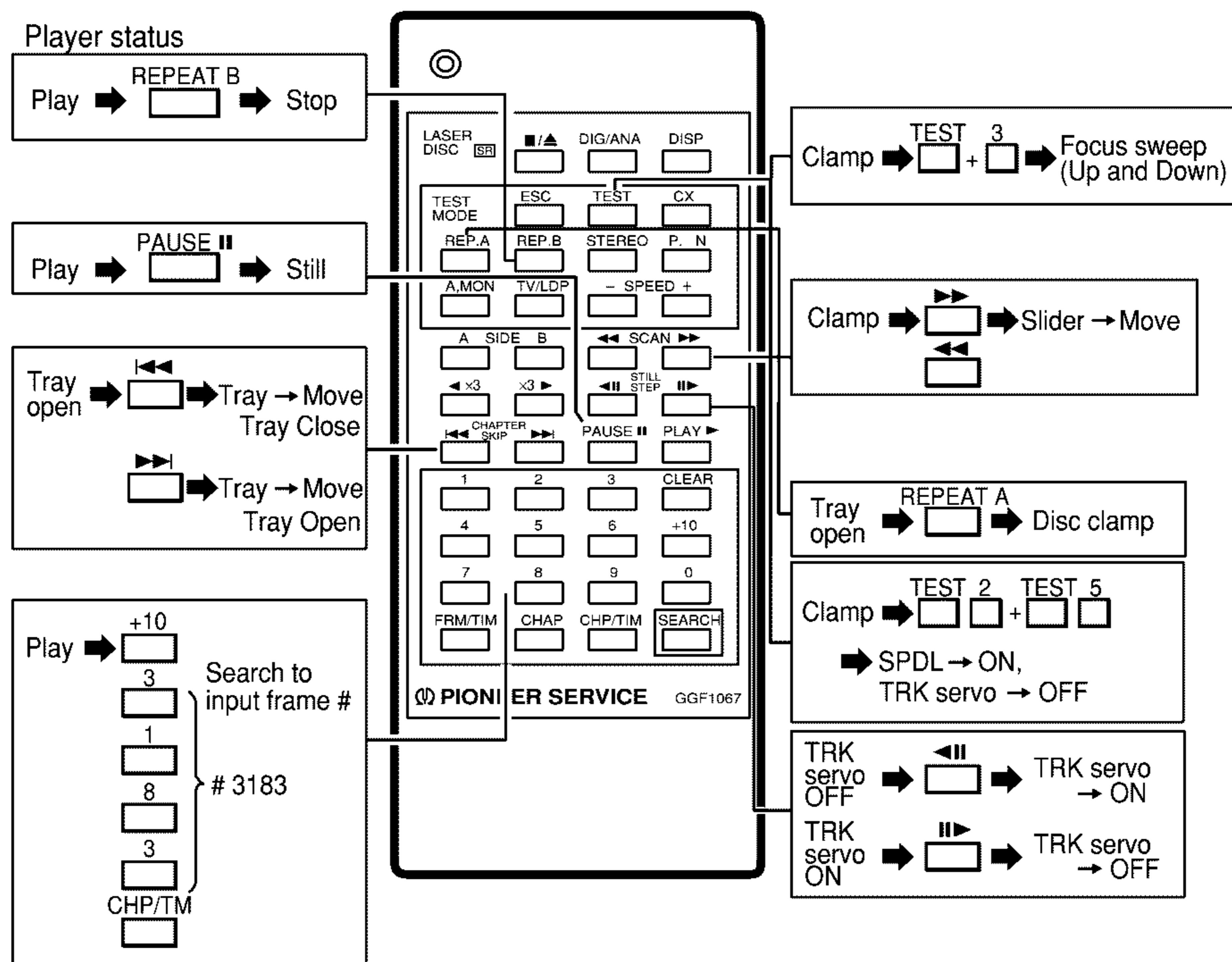
### ② VCO Offset Adjustment



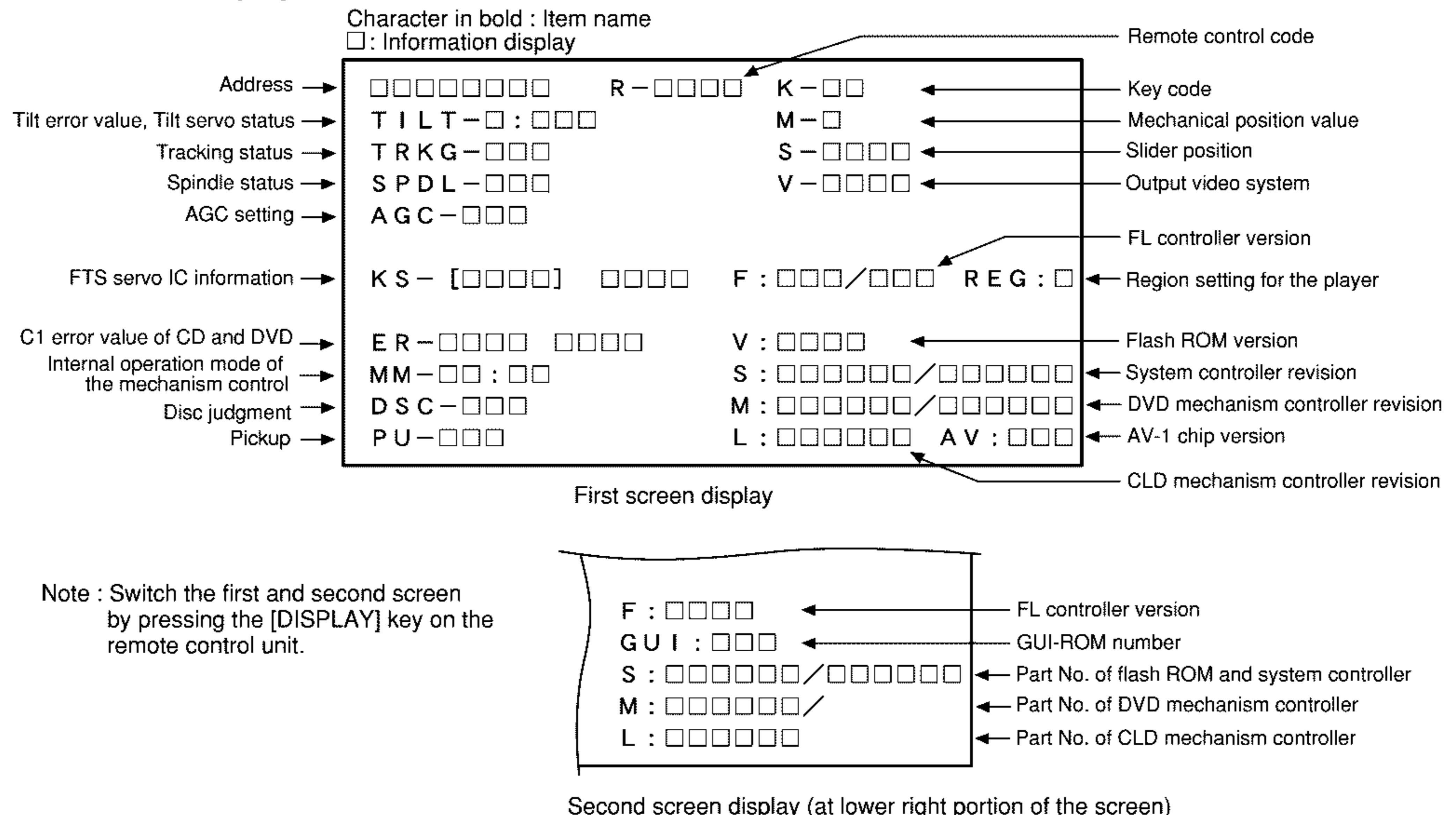
**③ Video Output Level Adjustment****MC-Service**

## 6.8 OPERATIONS IN THE TEST MODE

### ■ Test Mode Remote Control Unit (GGF1067)



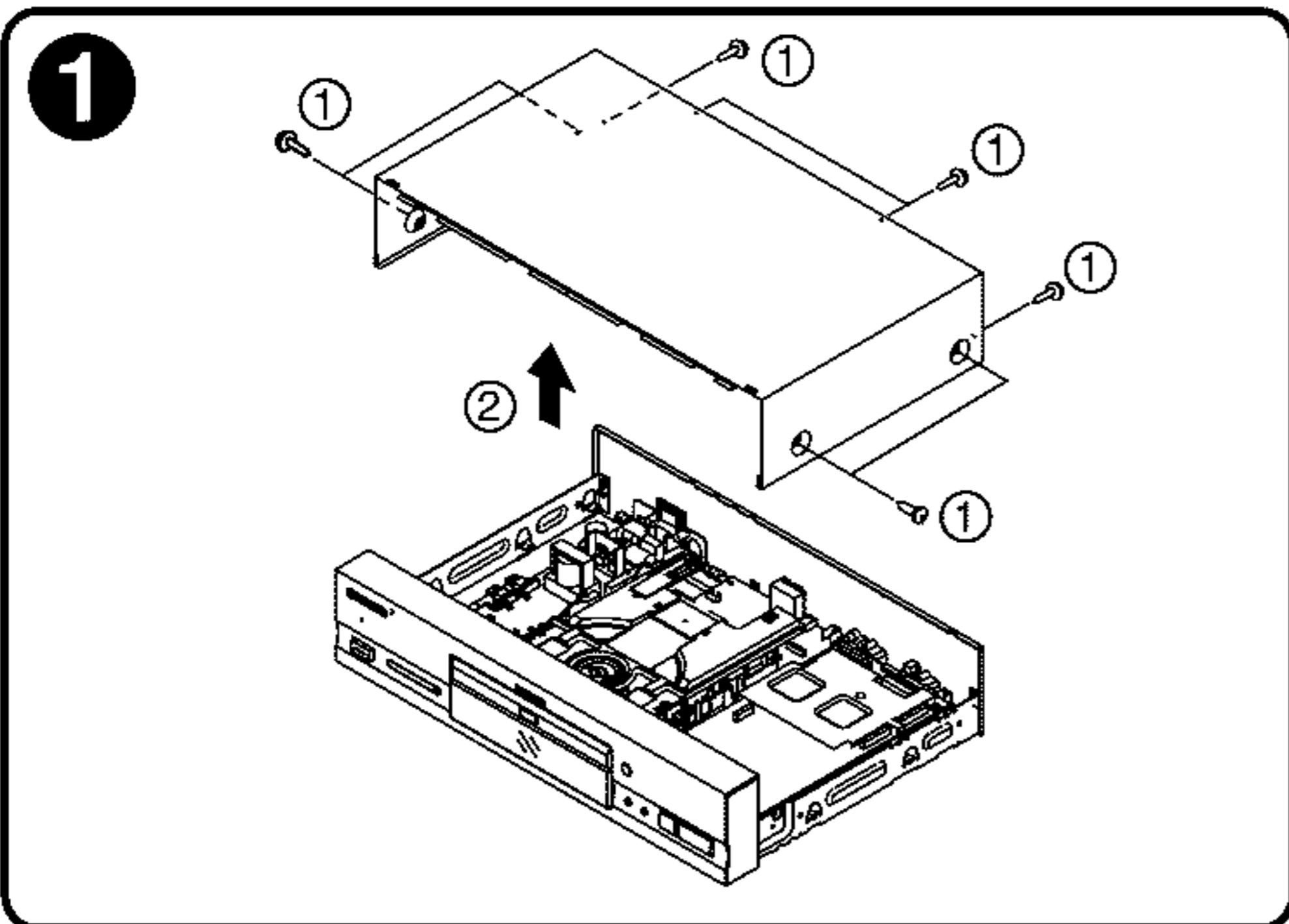
### ■ TV Monitor Display



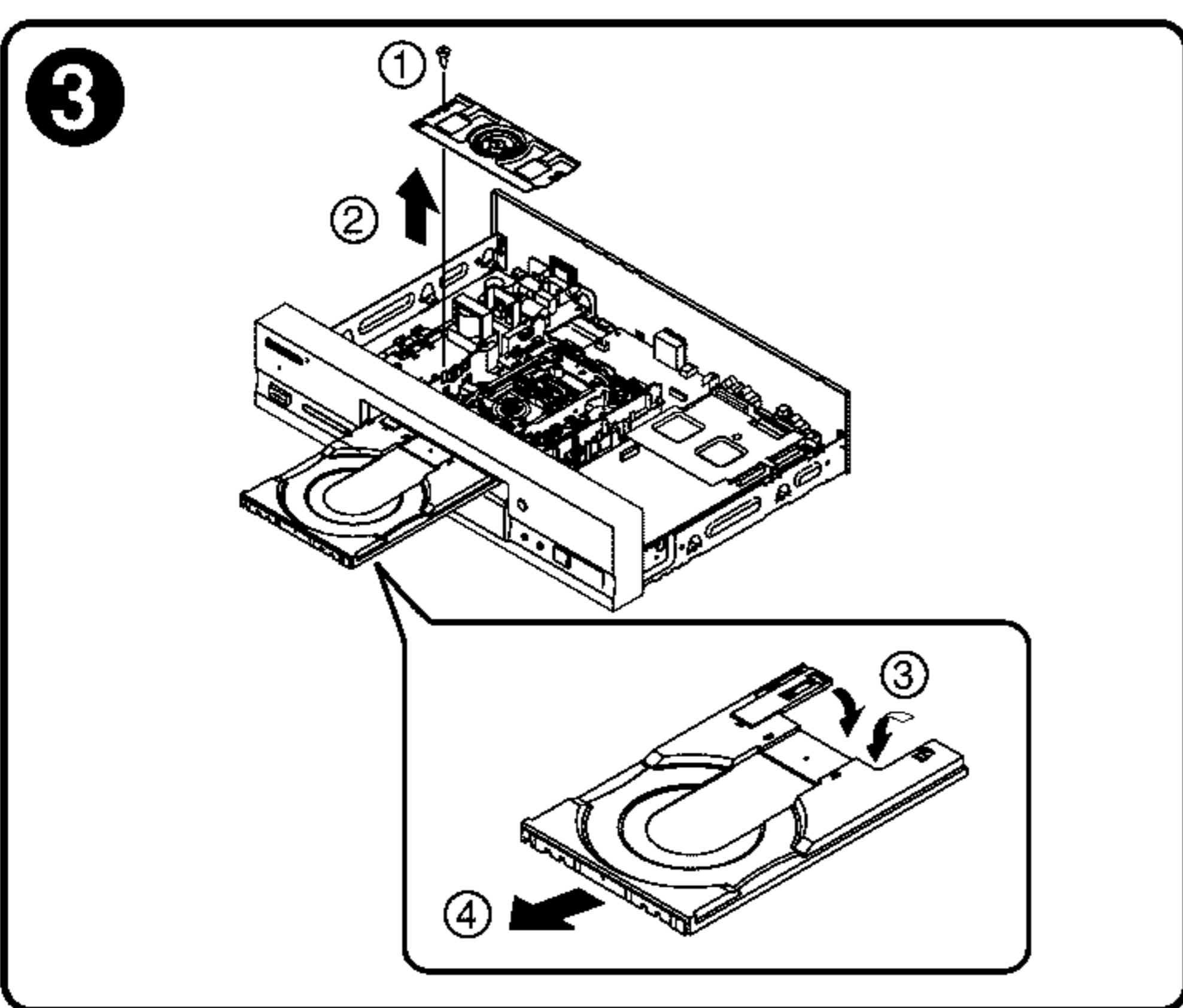
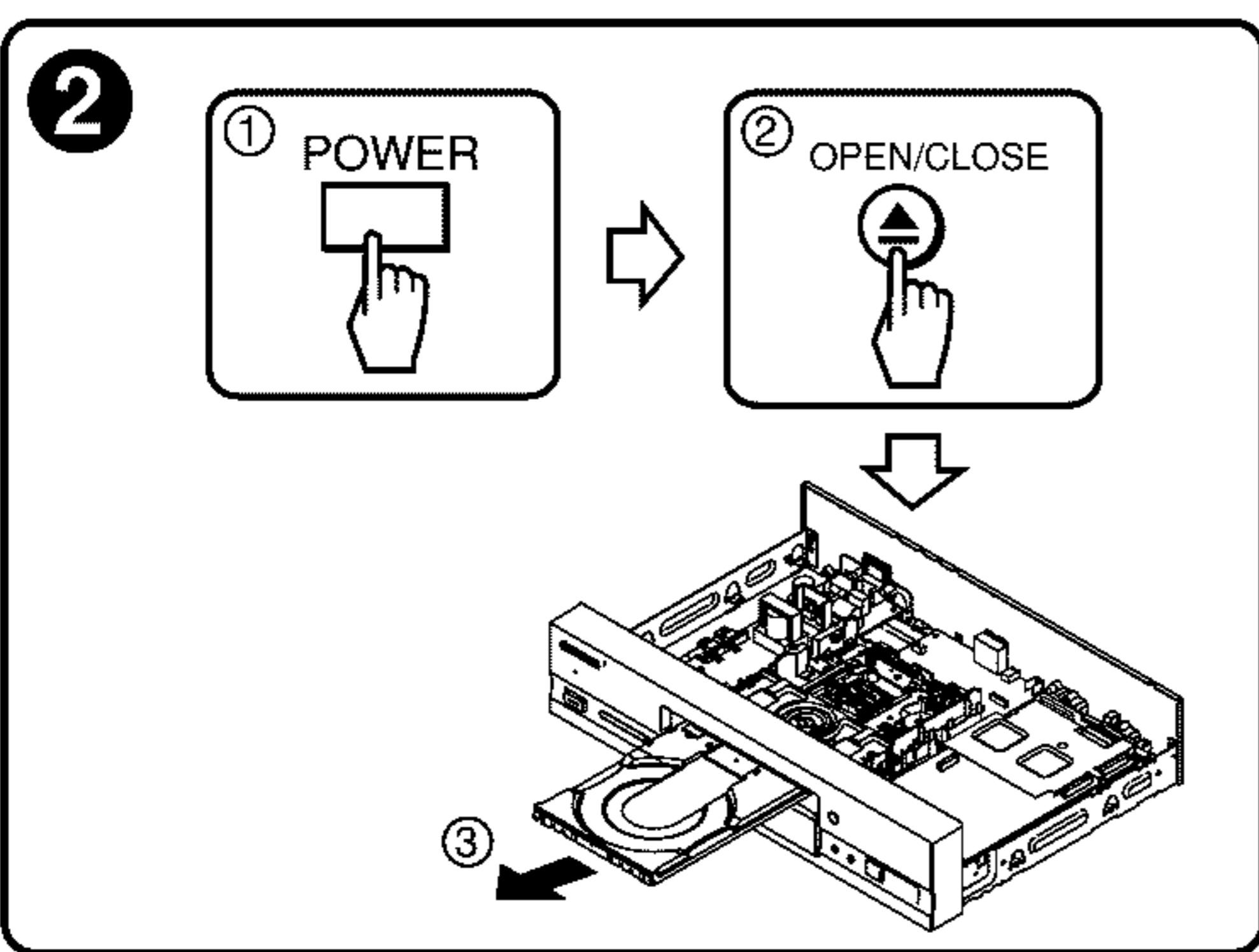
## 7. GENERAL INFORMATION

### 7.1 DISASSEMBLY

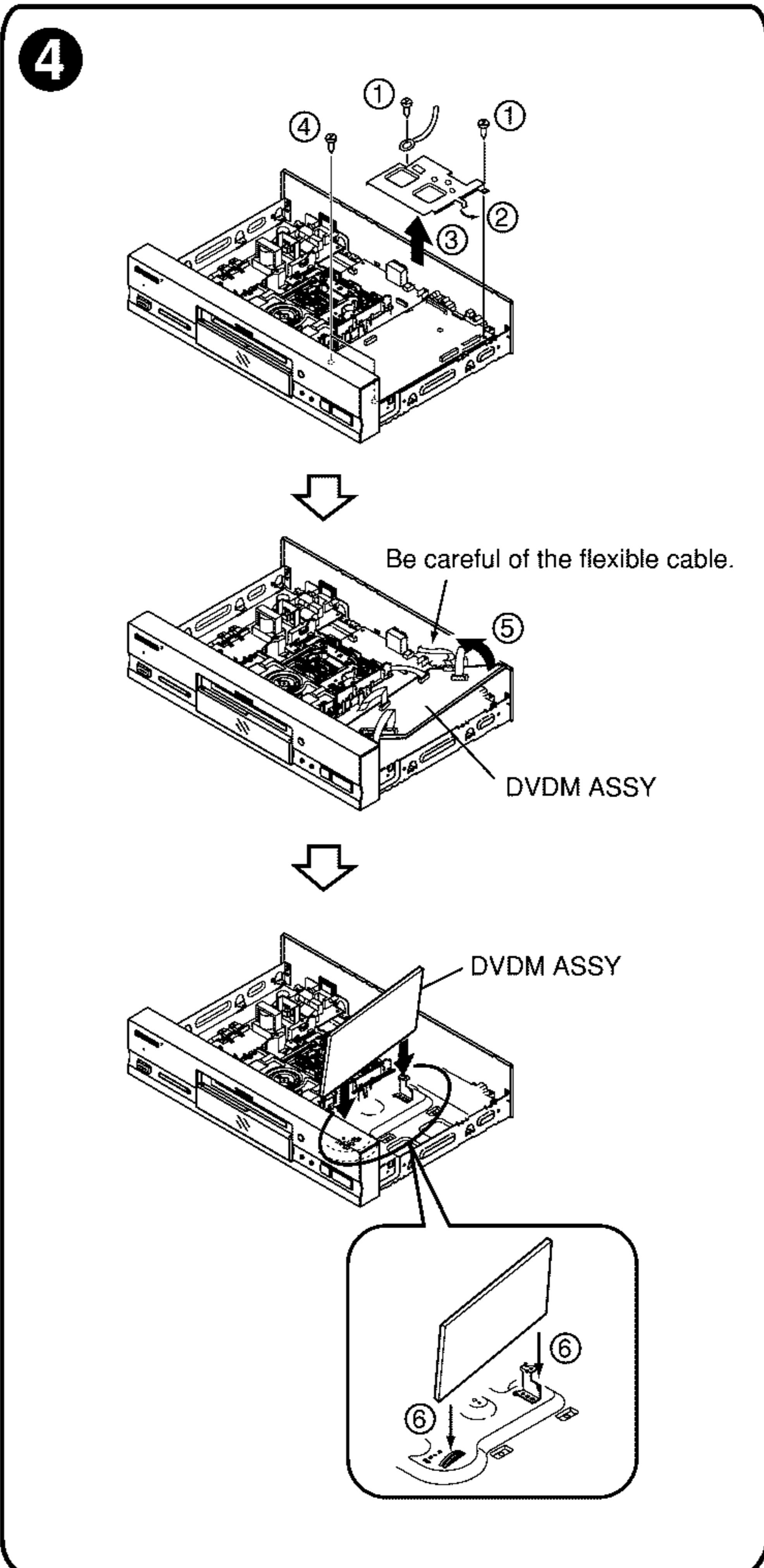
#### BONNET



#### DISC TRAY

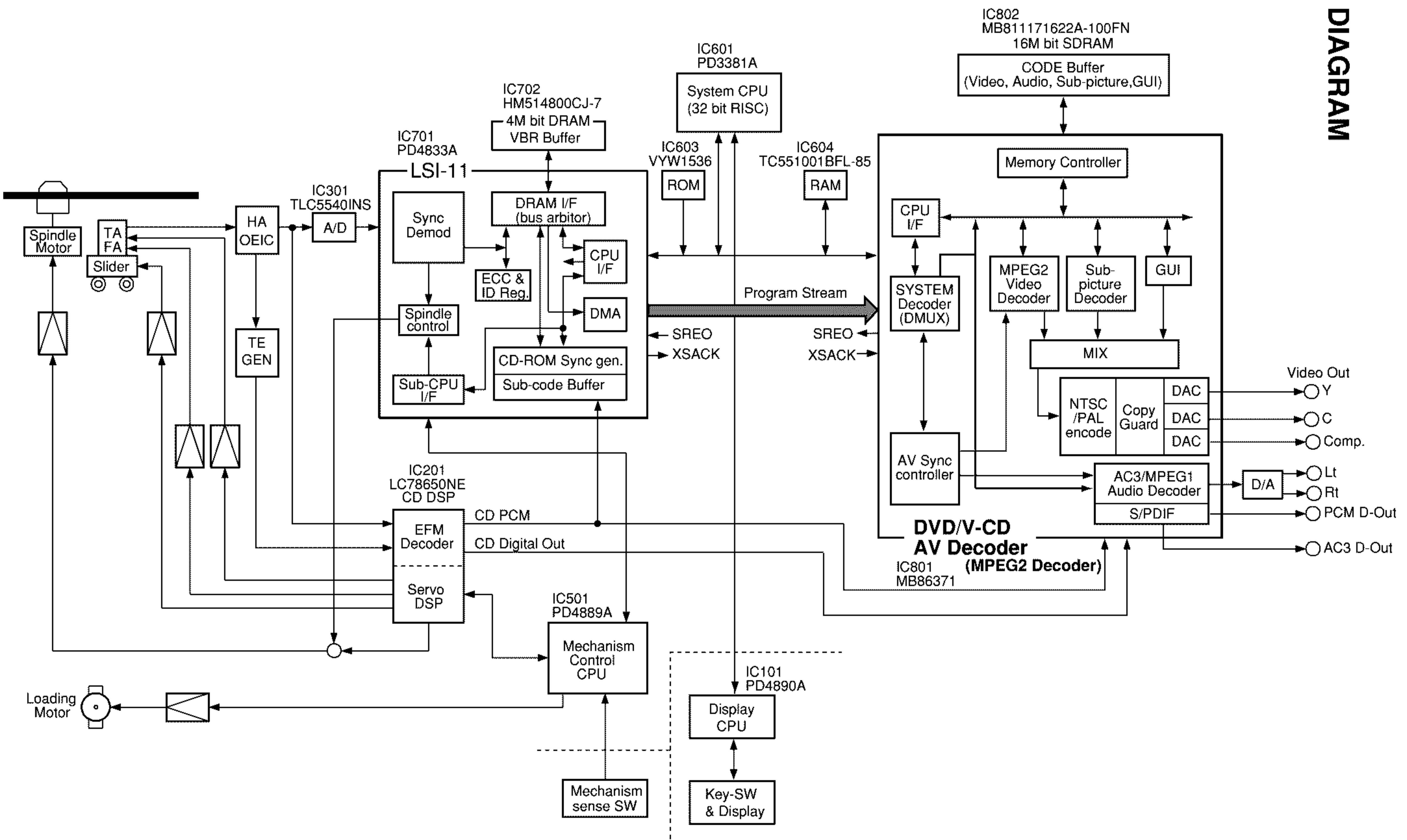


#### DVDM ASSY



Note : For the mechanism section disassembly, refer to the service guide.

## 7.2 BLOCK DIAGRAM

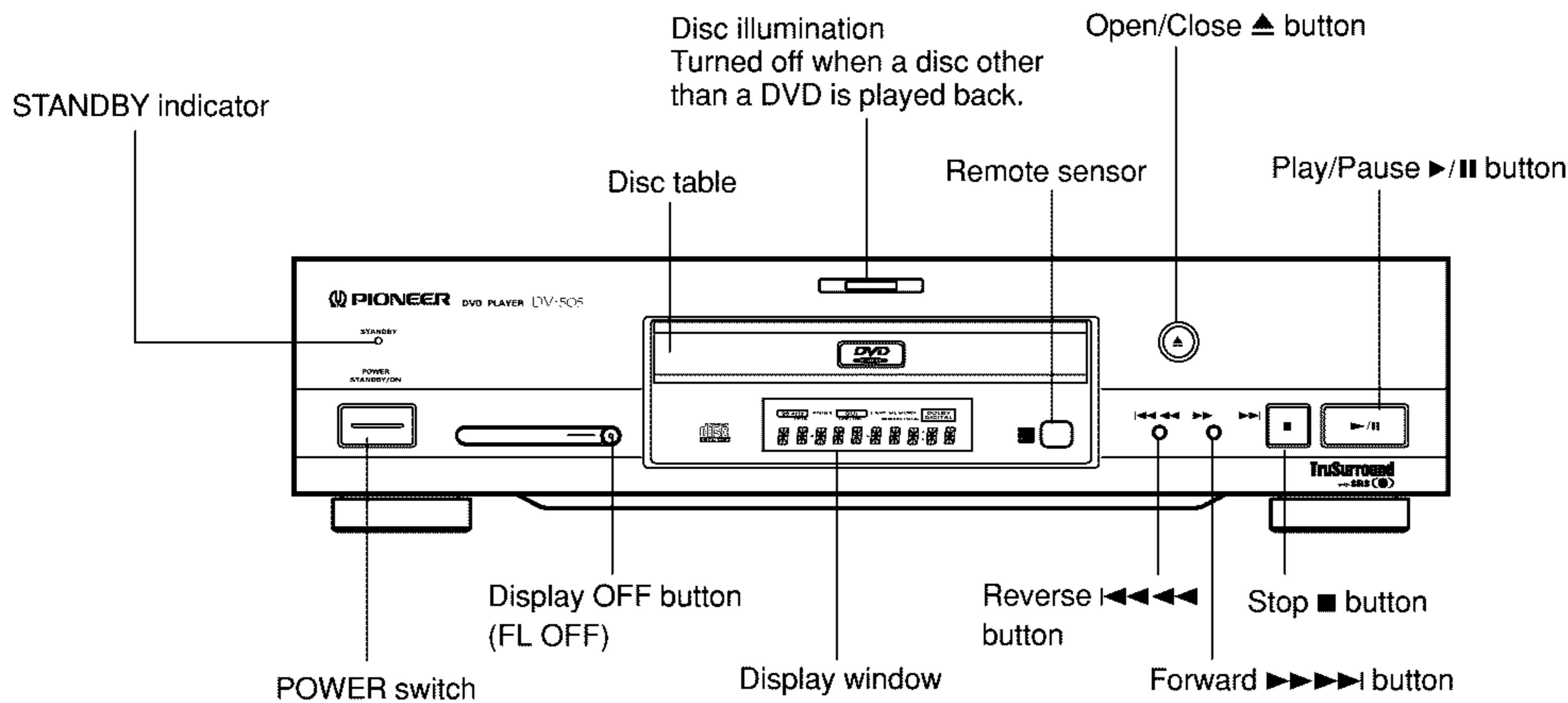


MC-Service

## 8. PANEL FACILITIES AND SPECIFICATIONS

### 8.1 PANEL FACILITIES

#### ■ FRONT PANEL



#### ■ REAR PANEL

##### Digital Output Jack (Coaxial)

This is used for output of the digital audio signal recorded on CDs and Video CDs. Depending on the components you connect this digital output to, noise may be generated.

When connecting to an AC-3 compatible component, use the PCM/ DOLBY jack. (Refer to the chart on the right.)

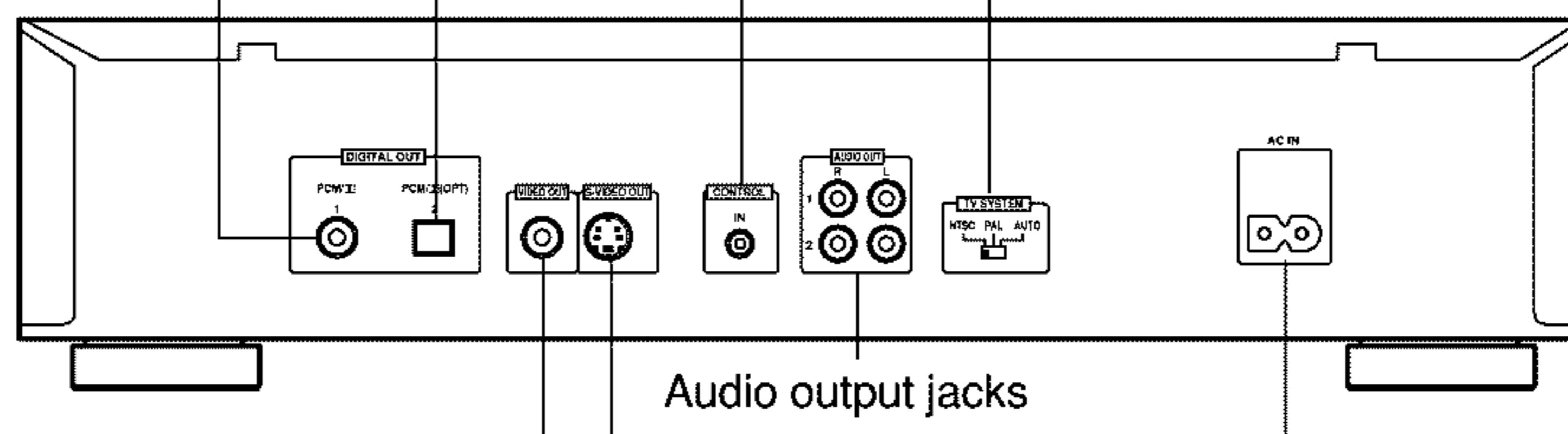
Your amp	Regular AV amp	Coaxial	Connect to the coaxial jack, and select PCM from the menu.
		Optical	Connect to the optical jack, and select PCM from the menu.
	AC-3 compatible amp	Coaxial	Connect to the PCM/ DOLBY jack, and select PCM/DOLBY DIGITAL from the menu.
		Optical	Connect to the optical jack, and select PCM/DOLBY DIGITAL from the menu.

##### Optical Digital Output

Audio optical digital output. Switchable between PCM/DOLBY DIGITAL and PCM output.

##### Control input jack

##### TV SYSTEM Switch



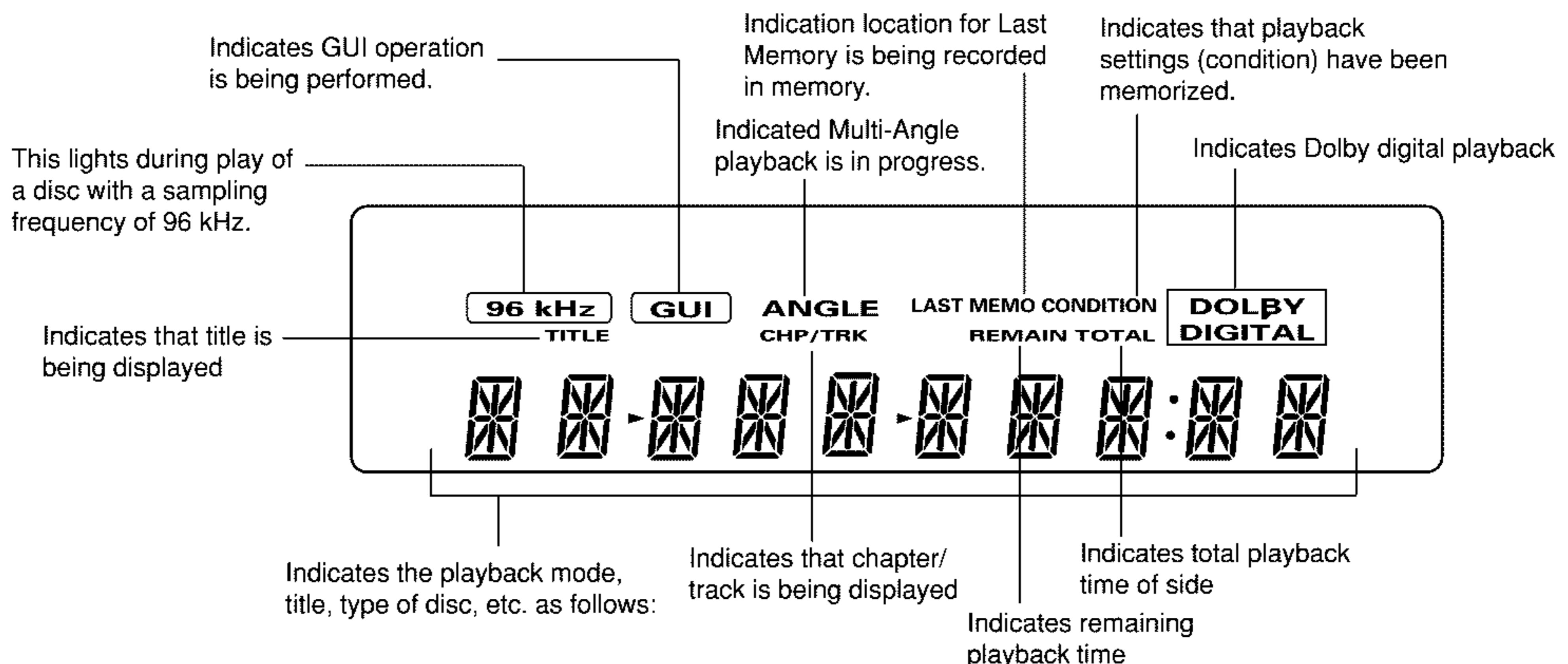
##### Audio output jacks

There are two sets of outputs, 1 and 2, which you can simultaneously connect. Connect 1 to the TV, and 2 to your AV amp.

##### S-Video output jack

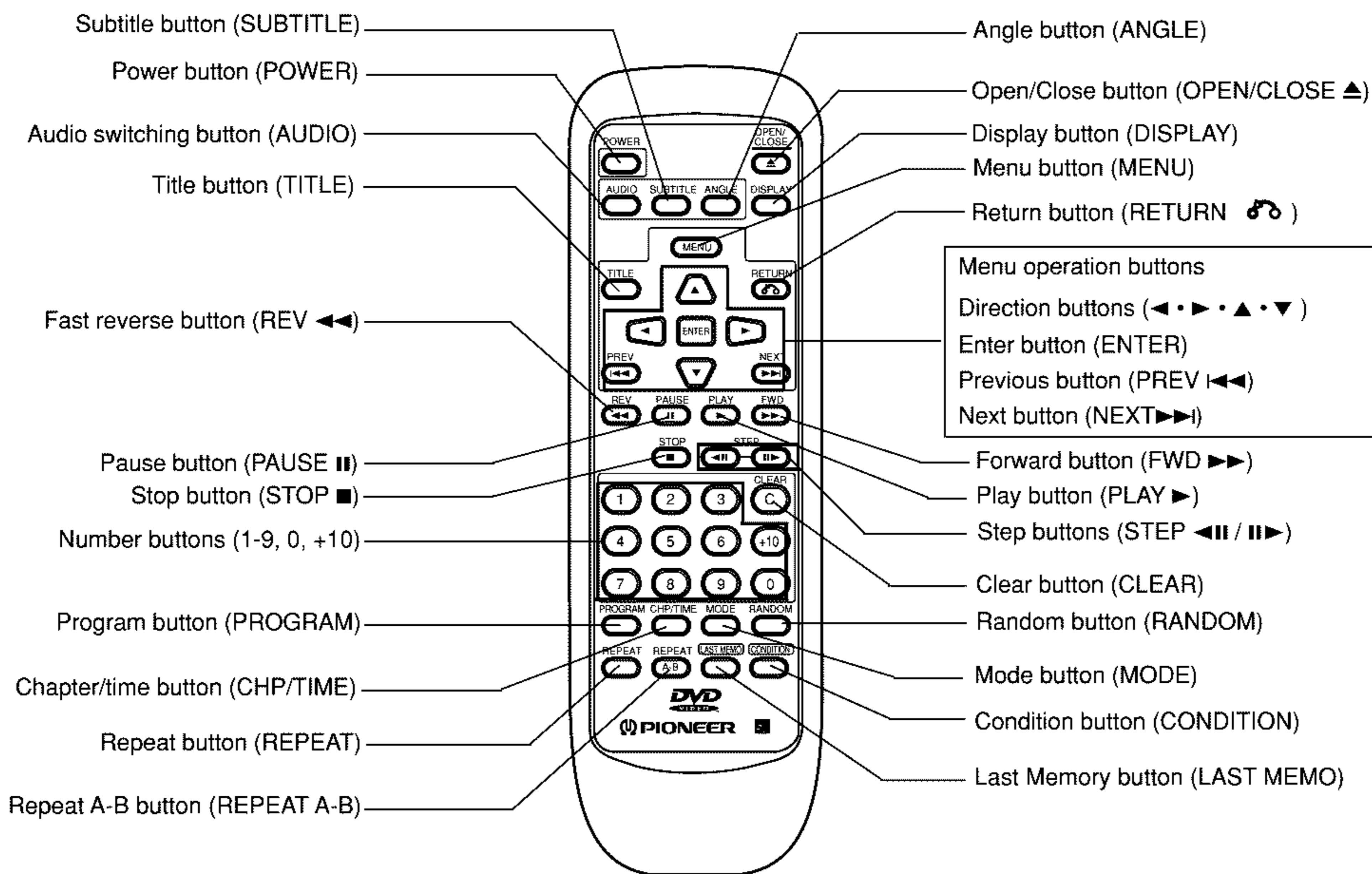
##### Power cord connection terminal.

## ■ DISPLAY WINDOW



C D	:Compact disc	R_S_I_D	:When side repeat is selected
D V D	:DVD	REPEAT TTL	:When title repeat is selected
V C D	:Video CD	REPEAT ALL	:When all repeat is selected
P_B_C P_L_R_V	:Playback control playback on Video CD	REPEAT PGM	:When program repeat is selected
O_P_E_N	:Disc table is opening or is open	PLAY	:Playback
C_L_O_S_E	:Disc table is closing	STOP	:Stop
R_D_M	:Random playback	PAUSE	:Pause
P_R_O_G_R_R_M	:Program mode	NO DISC	:No disc
R_T_R_K	:Repeat mode	- OFF -	:Power is turned off
R_R_A	:Start point of 2 point repeat playback	MENU	:Menu mode
R_R_B	:2 point repeat playback	TITLE	:Title menu
R_T_T_L	:Repeat playback of the title	CHAPTER	:Chapter menu
R_C_H_P	:Repeat playback of the chapter	SUBTITLE	:Subtitle menu
R_S_I_D	:Disc repeat	SETUP	:Set-up menu
C_I_N_E_M_A	:Cinema mode	AUDIO	:Audio menu
S_T_A_N_D_A_R_D	:Standard mode	ANGLE	:Angle menu
R_E_P_E_R_T A	:When memory repeat is selected	COND_MEMO	:Condition memory
R_E_P_E_R_T T_R_K	:When track repeat is selected	LAST_MEMO	:Last memory
R_E_P_E_R_T C_H_P	:When chapter repeat is selected		

## ■ REMOTE CONTROL



MC-Service

## 8.2 SPECIFICATIONS

### • For DV-505/RD/RC, RAM and RL types

#### General

System .....	DVD system, Video CD system and Compact Disc digital audio system
Laser .....	Semiconductor laser: wavelength 635 nm
Power requirements: .....	AC 110-120 V/220-240 V, 50/60 Hz
Power consumption .....	21 W
Weight .....	2.9 kg (6 lb 6 oz)
Dimensions .....	420 (W) x 284 (D) x 104 (H) mm (16 9/16" x 11 5/16" x 4 in.) (Not including protruding cables, etc.)
Operating temperature .....	+5°C to +35°C (+36°F to +96°F)
Operating humidity .....	5% to 85% (no condensation)

#### S-Video Output

Y (luminance) - Output level .....	1 Vp-p (75Ω)
C (color) - Output level .....	286 mVp-p (75Ω)
Jacks .....	S-VIDEO jack

#### Video Output

Output level .....	1 Vp-p (75Ω when loaded, synchronous negative)
Jacks .....	RCA

#### Audio Output (2 pairs)

Output level	
During audio output .....	200 mVrms (1 kHz, -20 dB)
Number of channels .....	2
Jacks .....	RCA

#### Digital audio characteristics

Frequency response	4 Hz to 22 kHz (DVD fs: 48 kHz) 4 Hz to 20 kHz (CD)
S/N ratio	115 dB (EIAJ)
Dynamic range	97 dB (EIAJ)
Total harmonic distortion	0.003 %
Wow and flutter	Limit of measurement (±0.001% W. PEAK) or lower (EIAJ)

#### Other Terminals

Optical digital output (PCM/ DTS ) .....	Optical digital jack
Coaxial digital output (PCM/ DTS ) .....	RCA jack
CONTROL IN .....	Minijack (3.5Ω)

#### Accessories

Remote control unit .....	1
AA (LR6) dry cell batteries .....	2
Audio cord .....	1
Video cord .....	1
Power cord .....	1
Operating Instructions .....	1

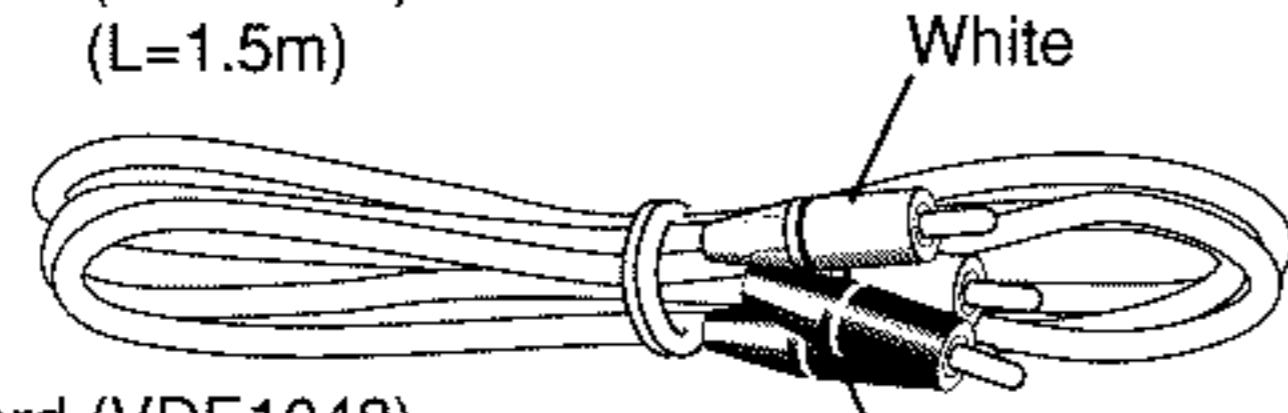
#### NOTE:

The specifications and design of this product are subject to change without notice, due to improvement.

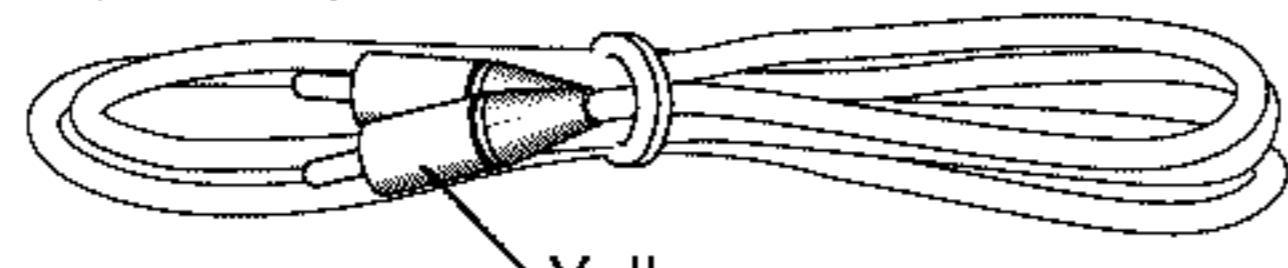
"Dolby, Digital (AC-3)" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

#### ■ Accessories

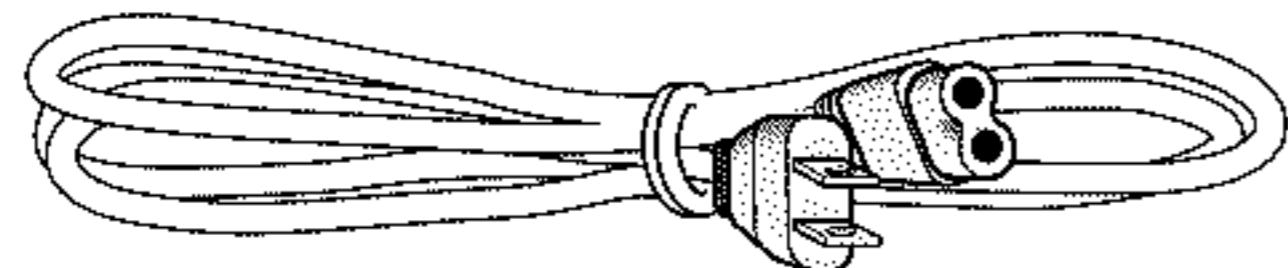
Audio cord (VDE1033)  
(L=1.5m)



Video cord (VDE1048)  
(L=1.5m)



Power cord



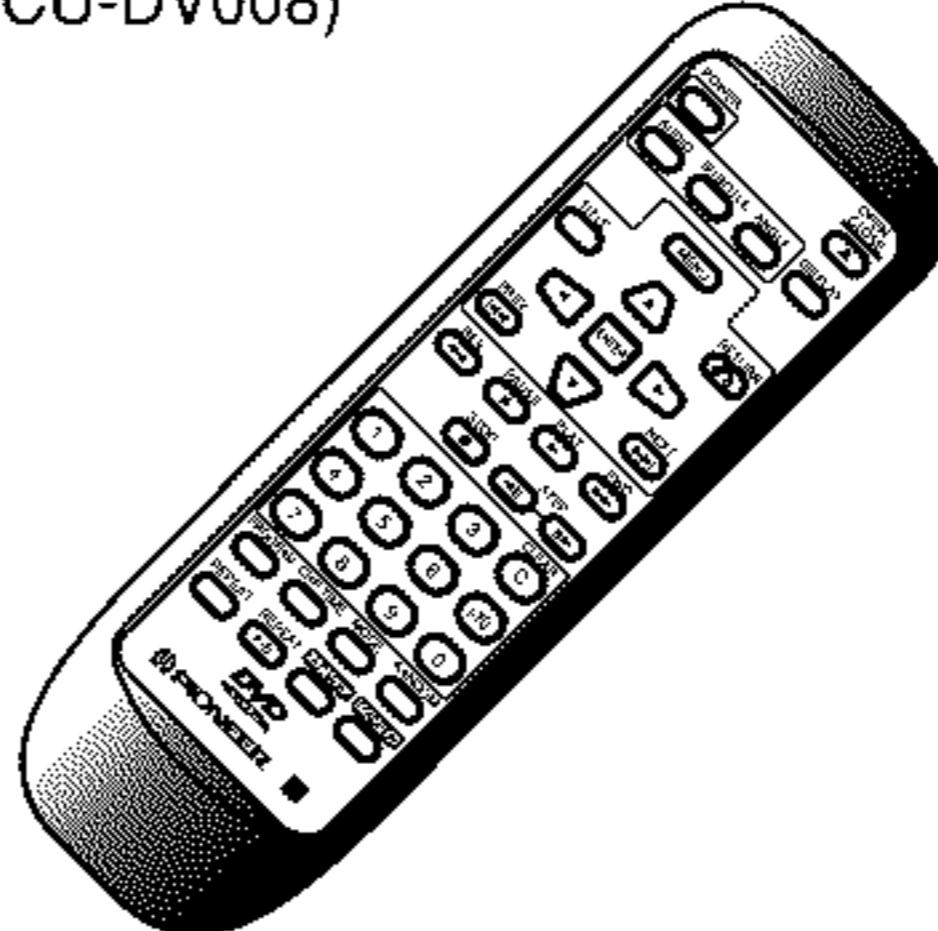
ADG1154 (WY, RL Type)

ADG1127 (WY/RD, WYW/SP Type)

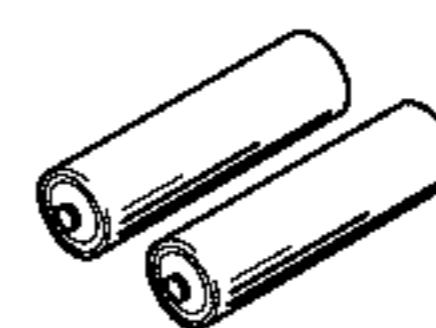
ADG7003 (RD/RC Type)

ADG7017 (RAM Type)

Remote control unit (VXX2540)  
(CU-DV008)



Batteries .... 2



#### Other included items :

- Warranty card
- Operating Instructions  
(this manual)

# Service Manual

**SERVICE GUIDE**

ORDER NO.  
**RRV1896**

DVD PLAYER

# DV-505

# DV-S9

DVD LD PLAYER

# DVL-909

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1. CIRCUIT DESCRIPTION .....	2
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FOR DV-S9 AND DV-09 .....	10
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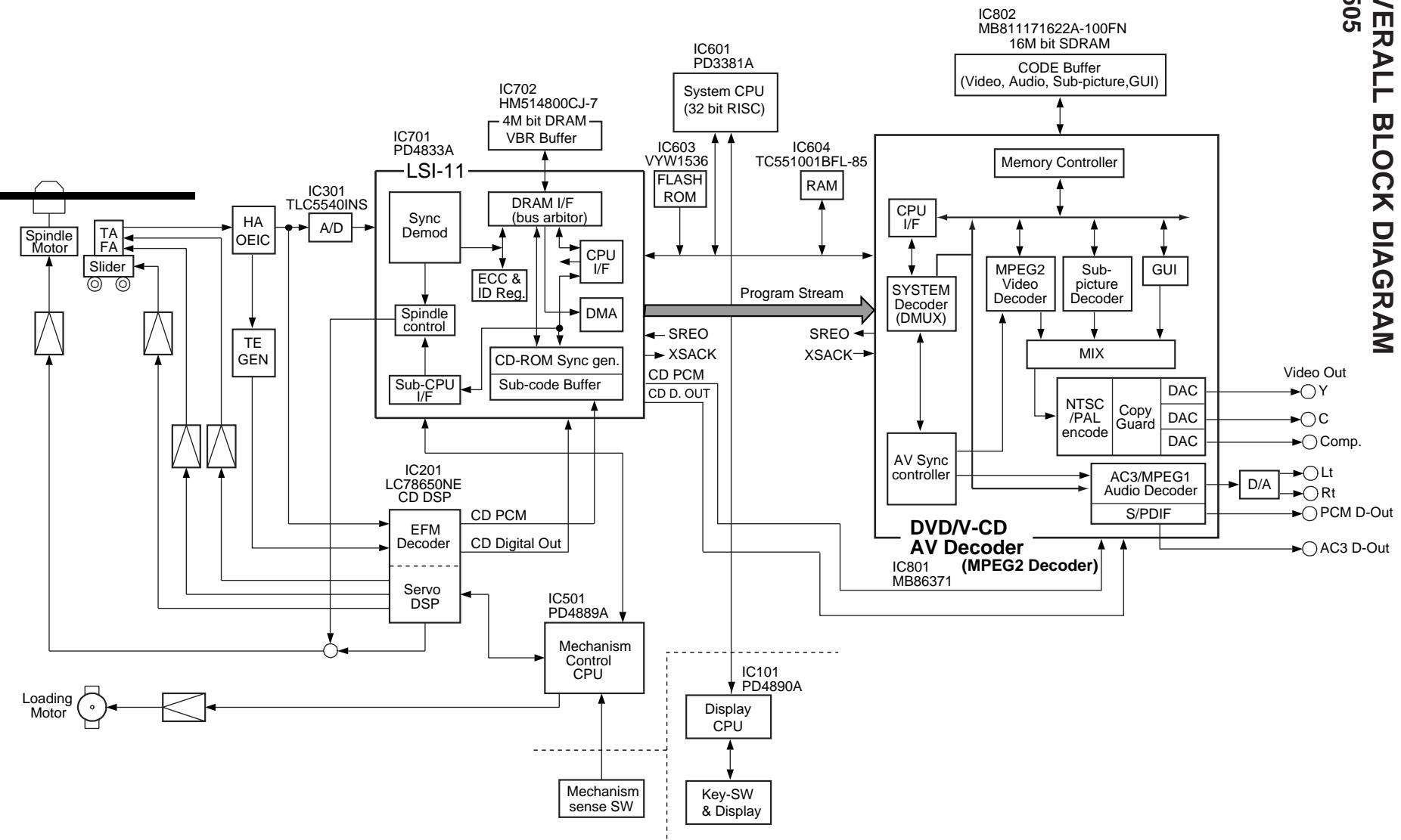
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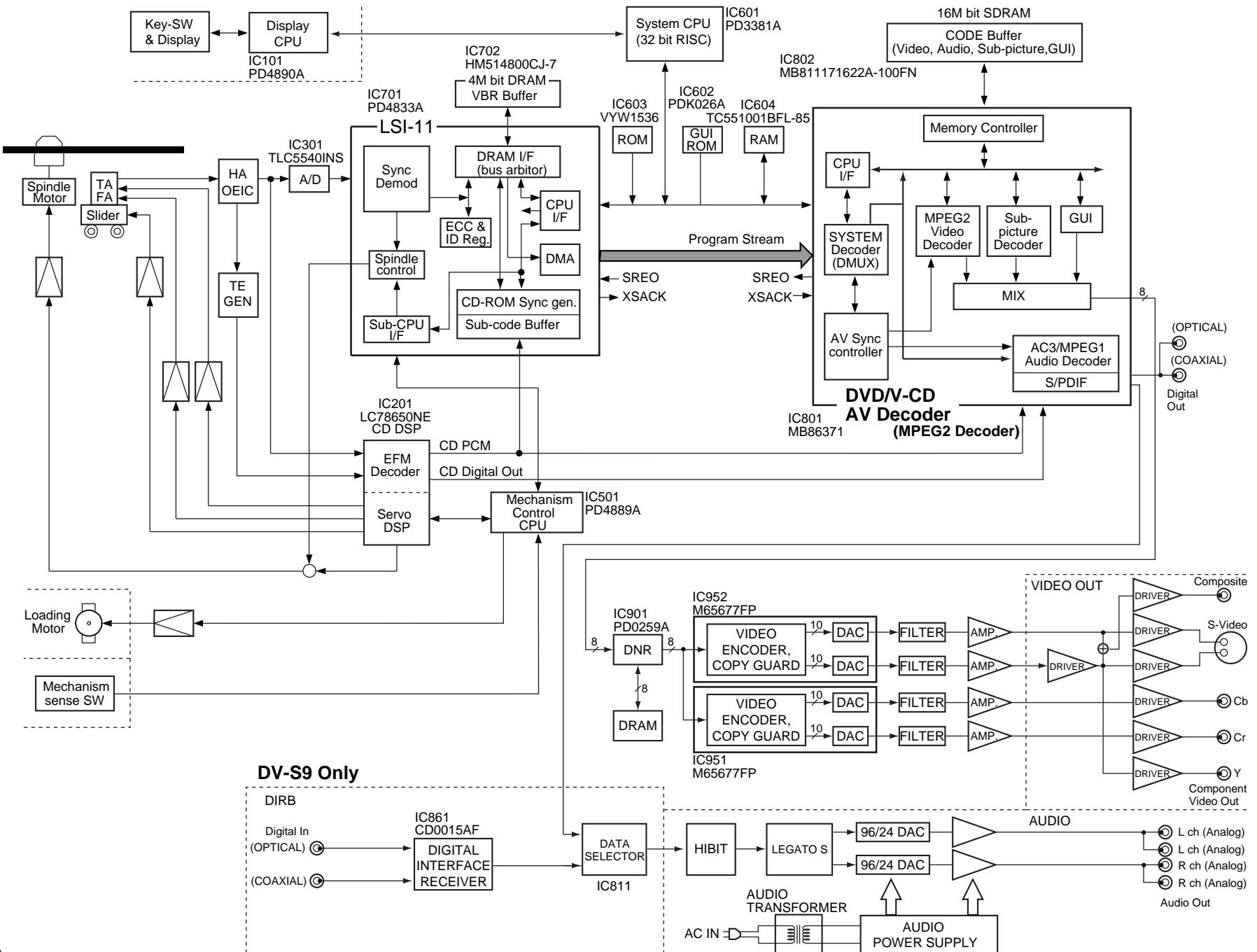
# 1. CIRCUIT DESCRIPTION

## 1.1 OVERALL BLOCK DIAGRAM

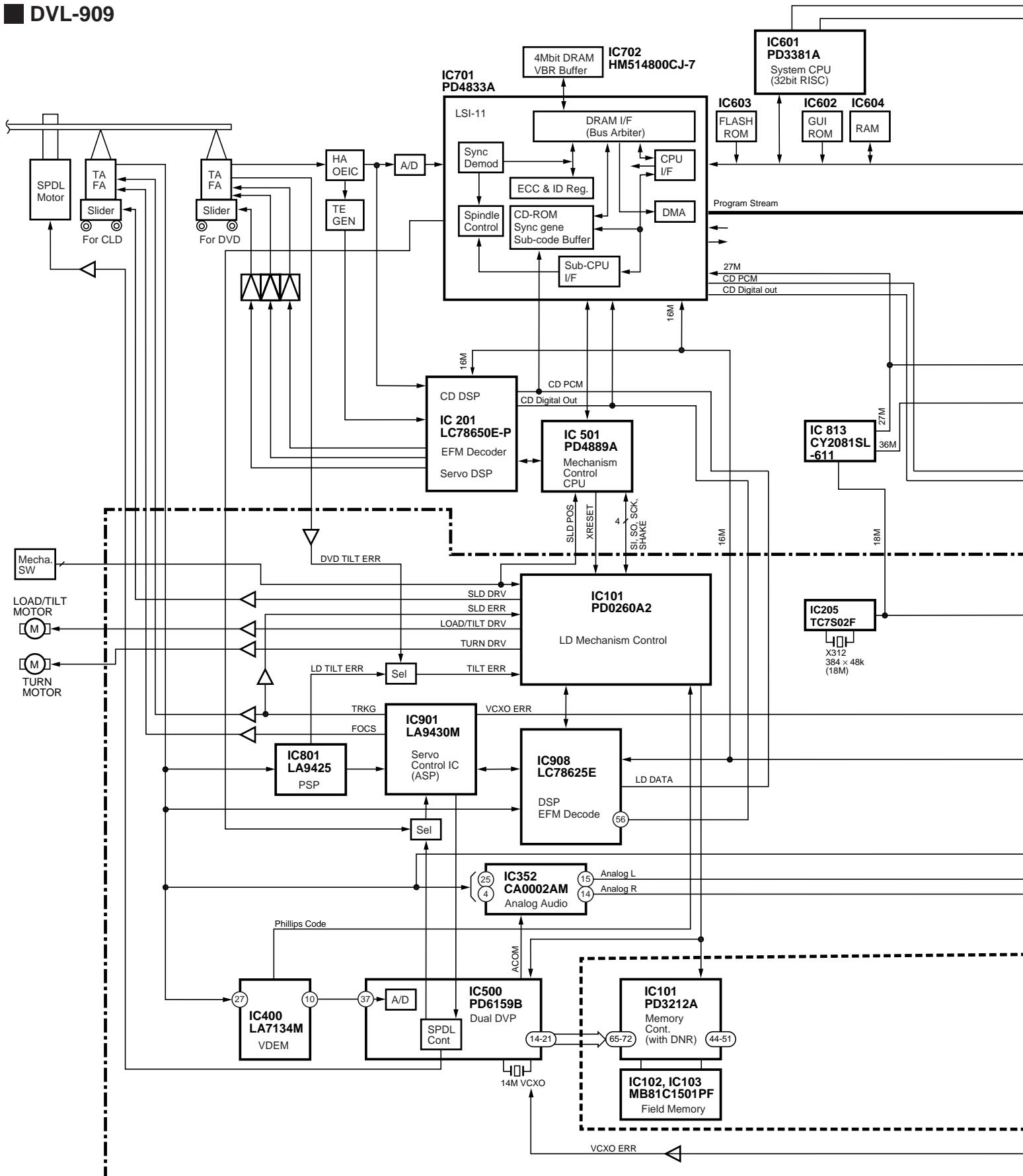
■ DV-505

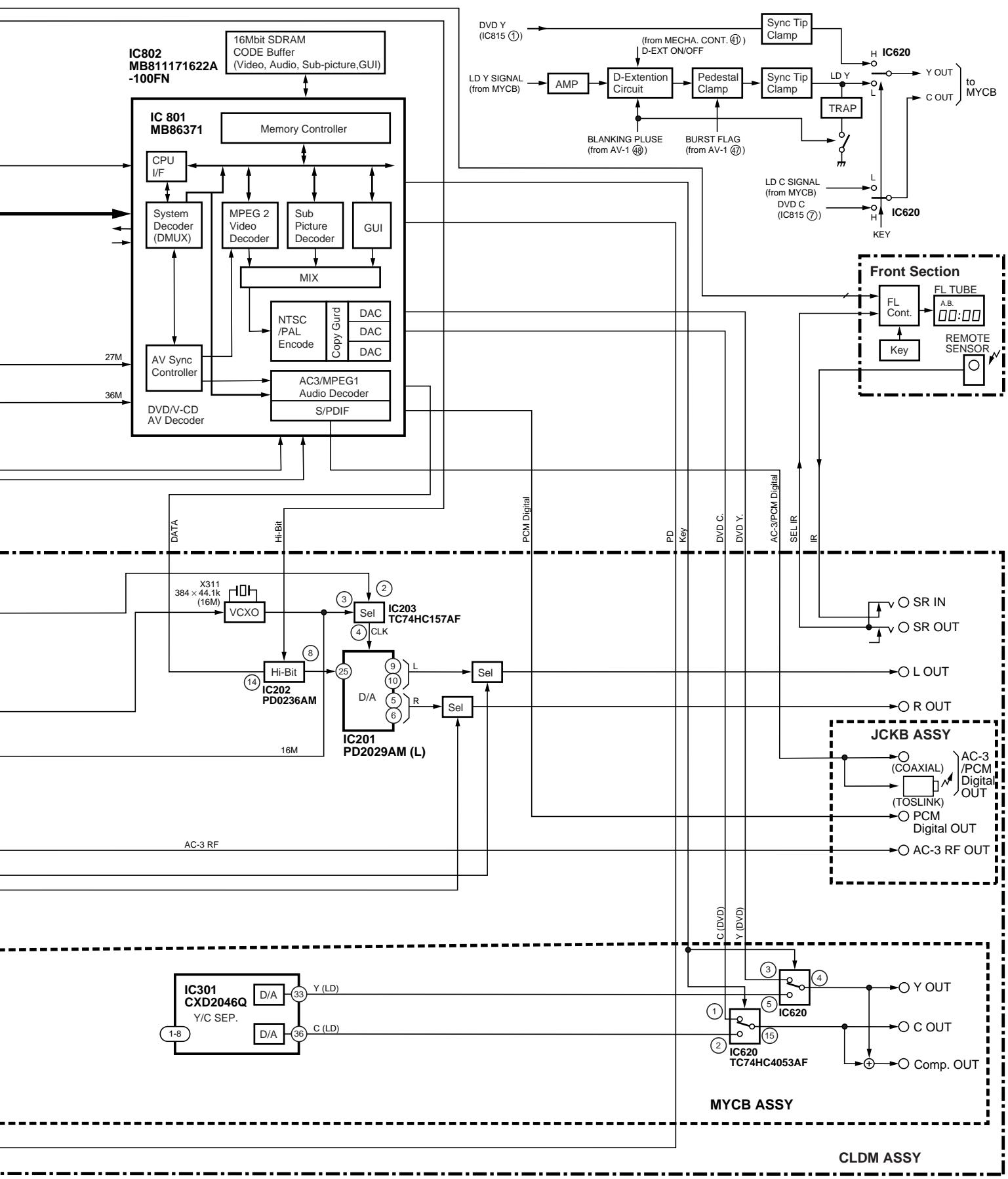


## DV-S9 and DV-09



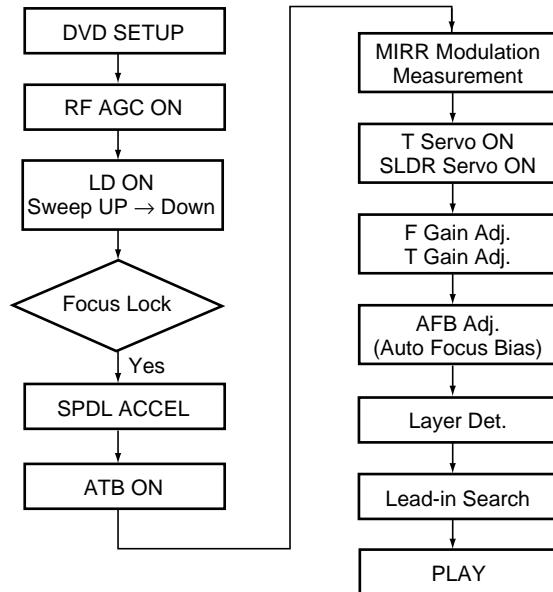
DVL-909





## 1.2 EXPLANATION OF EACH MOVEMENT

### 1.2.1 Sequence Up to Playback

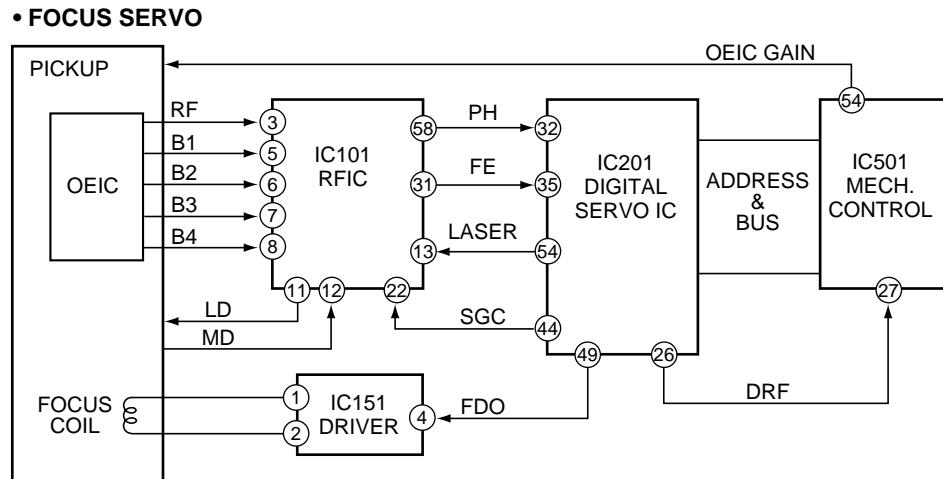


### 1.2.2 Focus Servo

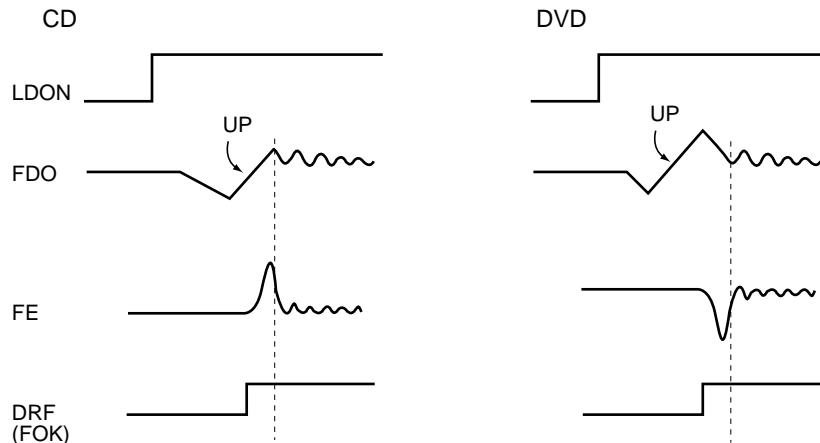
FE generated in the RF IC is sent to the Digital servo IC.

For a DVD, the servo is turned on during the transition from "Up" to "Down" of the first-order sine wave. For a CD, it turns on during the transition from "Down" to "Up" of the first-order sine wave.

When the servo is turned on, the level of PH (the envelope of the bright side of RF) increases, and DRF becomes H. The kick-brake pulses, such as those for FOCUS jump, are also output from pin 49 of IC201.



### • FOCUS LOCK TIMING



### 1.2.3 Tracking / Slider Servo

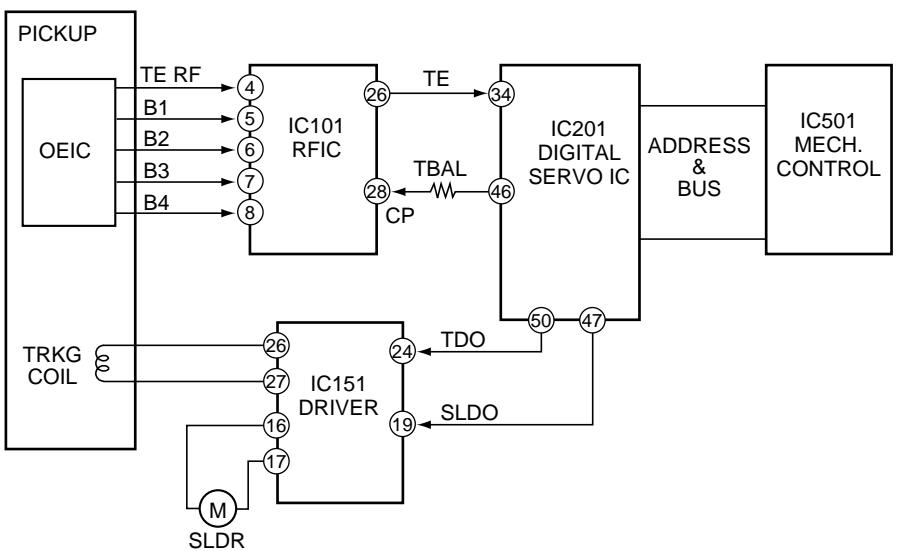
ATB: The tracking balance compensation is achieved by outputting the offset from the TBAL output at pin 46 of the digital servo IC, and by biasing the charge pump resistor for phase-difference error of RFIC.

The difference is detected by processing TE at pin 34 of IC 201 with an internal digital equalizer.

TDO: In addition to the servo output, the low-band components, such as the kick-brake for jump, are added for TDO output.

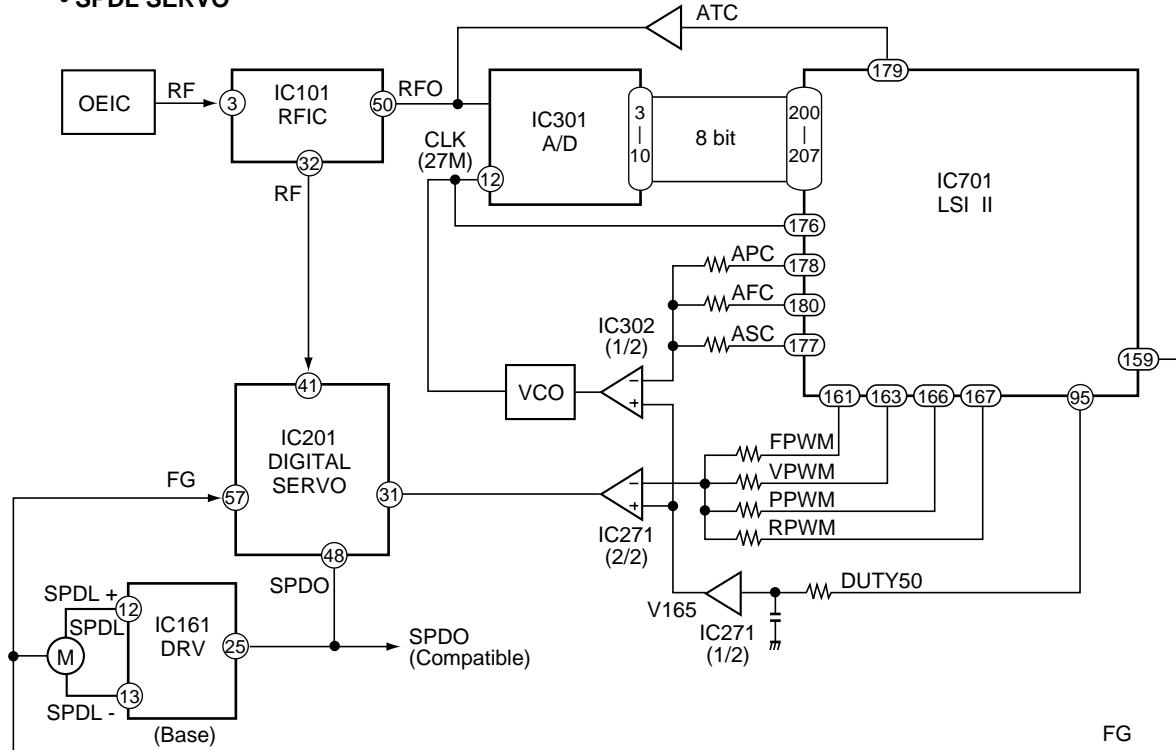
SLDO: The low-band components of TE are processed by the internal digital equalizer, and deadband is added for SLDO output. The offset voltage for pickup movement is also included in the SLDO output.

#### • TRACKING / SLIDER SERVO



### 1.2.4 SPINDLE SERVO

#### • SPDL SERVO



For a CD, the RF signal output from pin 32 of the RF IC is converted to binary in IC201. By comparing the binary value with the reference CLK (clock), the SPDL ERR signal is output from pin 48.

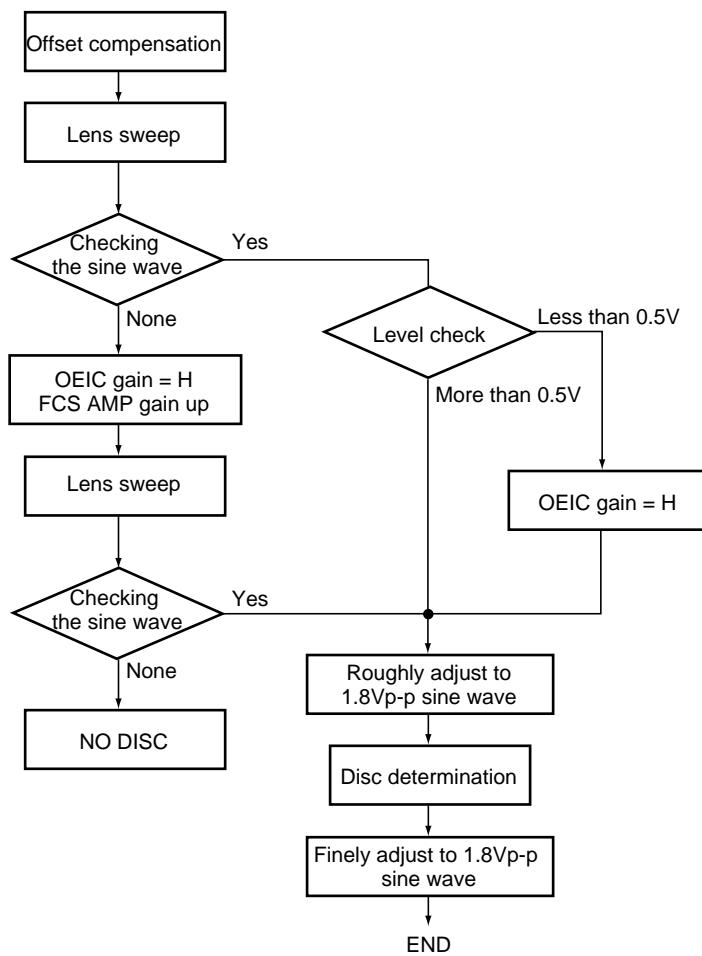
For a DVD, the SPDL ERR signal is generated from the PWM signal output from LSI-II. Upon receiving this signal via pin 31, IC201 also outputs it from pin 48, switching from the CD SPDL ERR signal.

### 1.2.5 Disc Determination

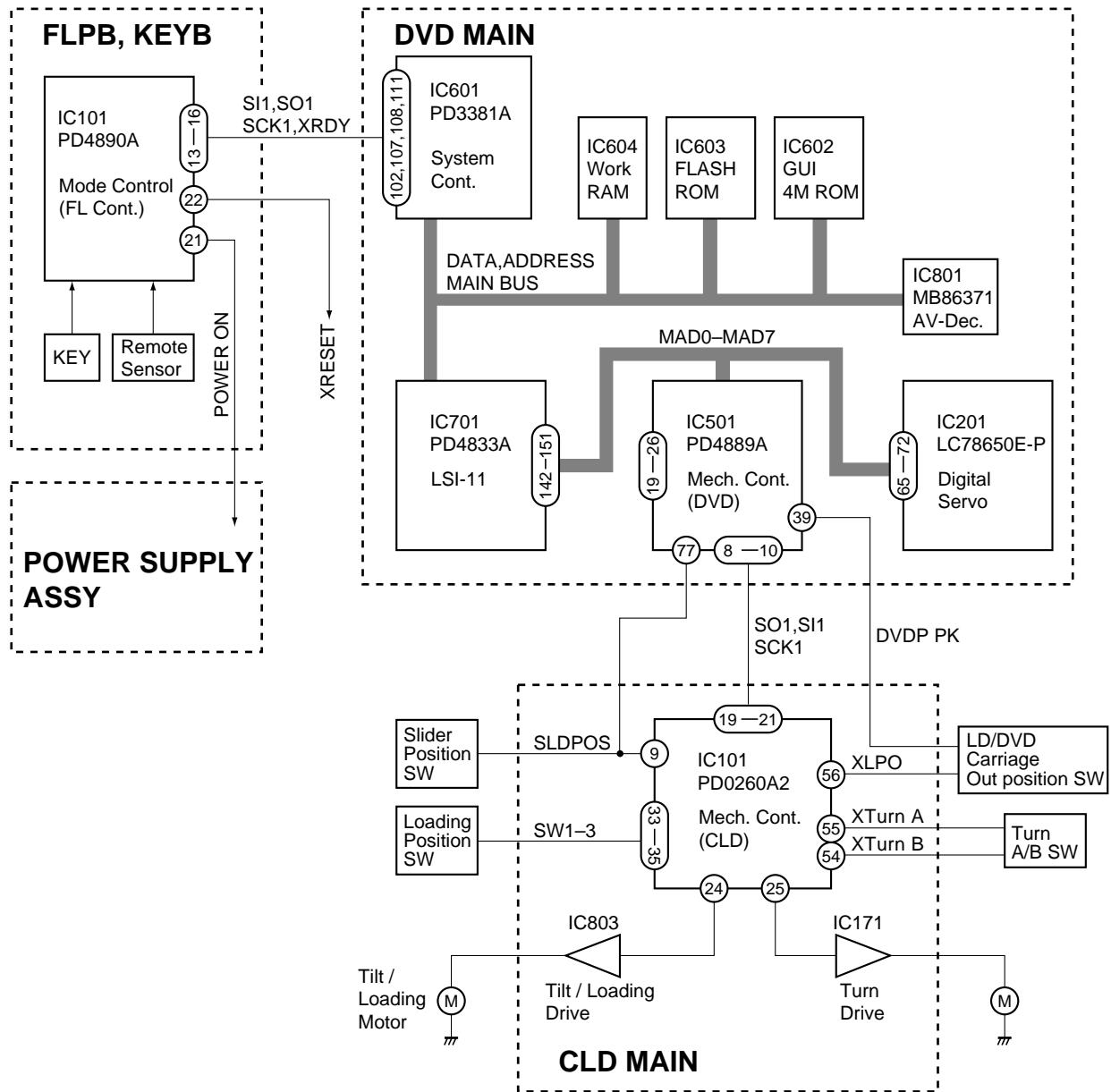
Determination is achieved by checking the sine wave by sweeping the lens with the OE IC gain at L and the FSC error amplifier (SGC) at the default setting. If no sine wave is detected, checking is retried after switching the OE IC gain to H and increasing the gain of the FSC error amplifier (SGC). If no sine wave is detected again, it is regarded as the NO DISC condition.

If one half of the sine wave detected at the first lens sweep is of a value less than 0.5 V, the OE IC gain is set to H and the peak-to-peak value of the sine wave is roughly adjusted to 1.8 Vp-p.

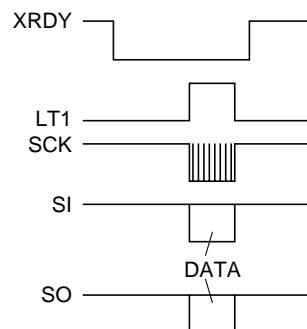
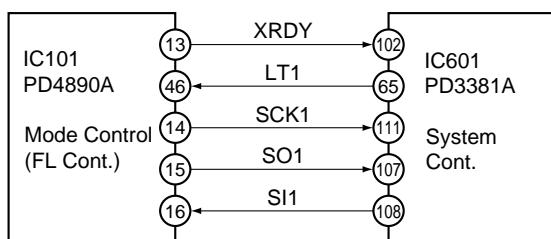
By sweeping the lens around the height where the sine wave has been detected, disc determination is performed, and the sine wave is finely adjusted to 1.8 Vp-p.



### 1.2.6 System Control (DVL-909)



1) Interface between Mode Cont. and System Cont.



Timing Chart

If there is no communication for 2 sec.,  
Mode Cont. turn off the power and reset.

## 2. CIRCUIT DESCRIPTIONS FOR DV-S9 AND DV-09

### 2.1 VIDEO SIGNAL PROCESSING BLOCK

#### 2.1.1 PD0259A Block

The major purposes of the PD0259A block are;

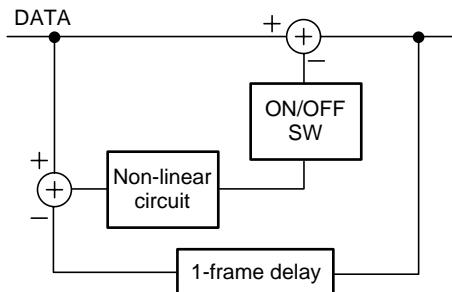
- (1) Frame-correlative cyclic digital noise reduction
- (2) Horizontal and vertical contour compensation
- (3) Y/C timing adjustment
- (4) Frame freezing

#### (1) Frame-Correlative Cyclic Digital Noise Reduction

For eight-bit digital video data input to the PD0259A, noise reduction is performed through subtraction between the data and those of the corresponding points 1 frame before, delayed for the subtraction via a 4-bit DRAM by 1 frame.

The noise signal detected as a result is sent to a non-linear circuit. If the difference is larger than a specific value, it is regarded as "a change in picture," and no canceling calculation is made.

This function is the same as that which has been performed in conventional laser-disc players. The only difference is that the input video signal here is a DVD digital component signal (4:2:2), while it is an LD digital composite signal in conventional laser-disc players.



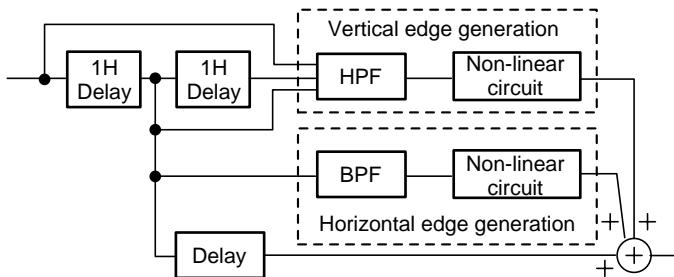
#### (2) Horizontal and Vertical Contour Compensations

For data after digital noise reduction, horizontal and vertical contour compensations are made only for the Y-signal.

Horizontal compensation is performed by detecting edge components from the information of the reference picture elements and those that horizontally proceed and succeed by several pixels, and then generating edge-emphasizing components through non-linear processing of the detected components.

Vertical compensation is performed by detecting edge components from information on the reference picture elements and those which vertically proceed and succeed by one line, and then generating edge-emphasizing components through non-linear processing of the detected components.

These edge-emphasizing components are added to the main-line digital data to achieve contour compensations.



#### (3) Y/C-timing Adjustment

This function changes the output phase of the Y signal with respect to the Cb and Cr signals in units of the 13.5-MHz clock cycle (approx. 74 ns).

#### (4) Frame Freezing

In response to a command sent from the system control computer by serial transmission, data for one frame are frozen, and the frozen picture is output.

This function is specific to the DV-S9 and is used only for picture-by-picture reversing by jog/shuttle operation or "Slow 1" playback operation.

#### 2.1.2 M65677FP Block

The M65677FP block functions as an NTSC encoder that converts digital component signals to analog Y, C, Cb and Cr signals. While our popular models other than the DV-S9 use the built-in encoder in the MB86371 block, an external NTSC encoder is added to the DV-S9, as it performs digital processing in the PD0259A block.

In addition to NTSC encoding, the M65677FP also performs:

- (1) D.EXT(DV-S9)/BLACK LVL(DV-09)
- (2) C.LEVEL adjustment

#### (1) D.EXT(DV-S9)/BLACK LVL(DV-09)

Setup of -7.5 IRE is added to the Y signal. D.EXT(DV-S9)/BLACK LVL(DV-09) processing using analog signals in conventional laser disc players is achieved by using digital signals.

#### (2) C.LEVEL Adjustments

The burst level of the C signal can be varied centering around 40 IRE.

Therefore, it is performed for the S-connector and CVBS-connector outputs, but not for the color-difference output.

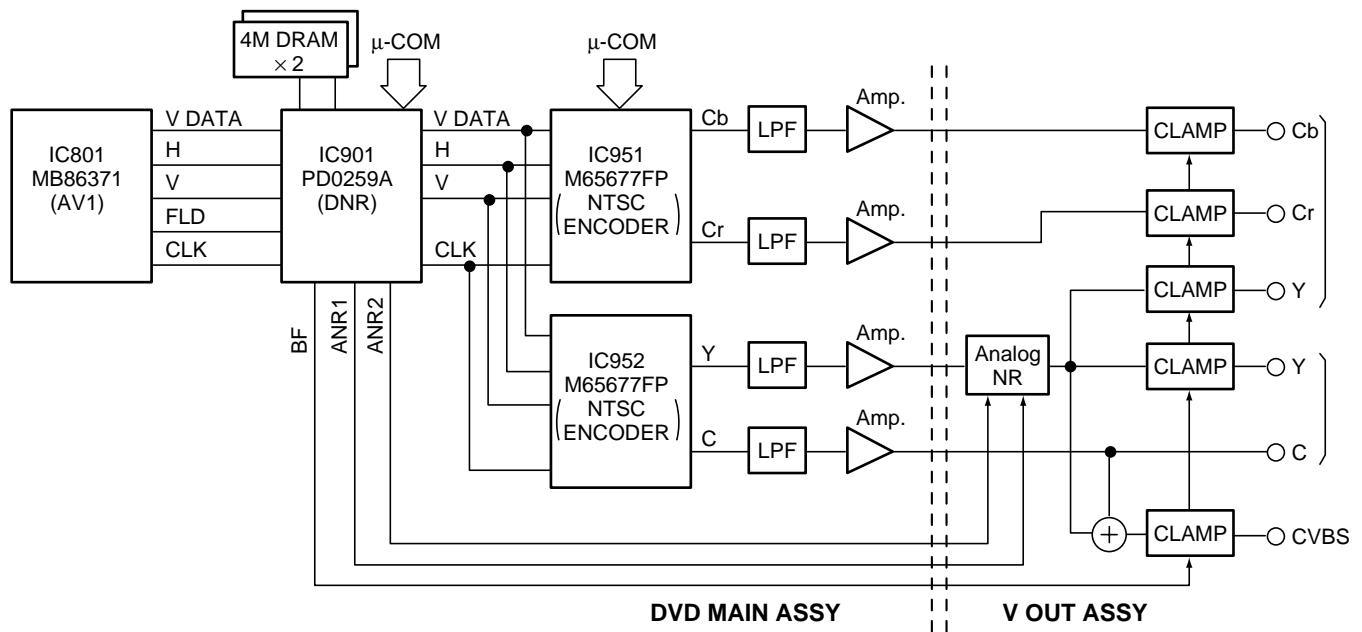
This function is also not available if the connected TV receiver has no AGC circuit.

### 2.1.3 Analog Video Signal Processing Block

The video signals output from the built-in 10-bit DA converter of the M65677FP pass through a low-pass filter and amplifier, and are output from the DVD MAIN Assy and sent to the VOUT Assy.

In the VOUT Assy, analog noise-reduction processing having three levels (OFF, low, and high) is initially applied only to the Y signal. This analog noise reduction is the same as that performed by conventional laser-disc players. The register port output in serial communication that the PD0259A receives from the system-control computer is used as the control signal for analog noise reduction.

After analog noise reduction, a CVBS signal is generated by composing the Y and C signals (no clamping is performed for the C signal). The timing pulse BF to be used for pedestal clamping is supplied from the PD0259A. This signal is adjusted within the PD0259A so that it provides the timing for the burst portions of the output video signals.



## 2.2 DIRB BLOCK (DIRB ASSY) (DV-S9 ONLY)

The two major purposes of the DIRB block are the following:

- (1) Switching between data reproduced from a disc and a data signal in DAC mode
- (2) Data decoding in external input mode (DAC mode)

### (1) Switching Between Data Reproduced from a Disc and a Data Signal in DAC Mode

The signal switching is performed at IC811, sending 3-line data (LRCK, BCK and DATA) to the AUDIO Assy. The switching control line (DAC MODE) is supplied from the DVD MAIN Assy. The master clock (MCK) is generated by a crystal on the AUDIO Assy when reproducing a disc, and by IC861 in DAC mode. MCK is sent to the AUDIO Assy via RXP.

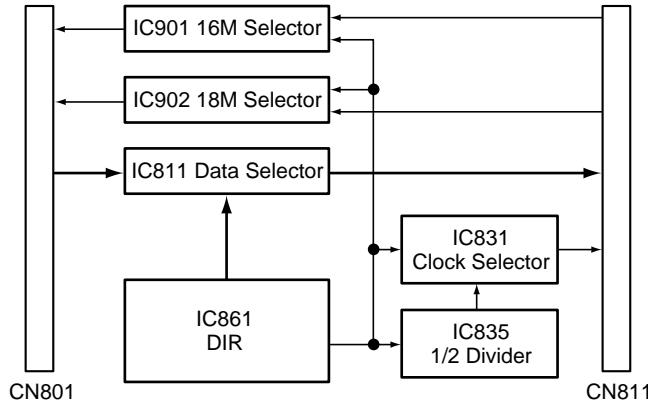
### (2) Data Decoding in External Input Mode (DAC Mode)

When the user selects DAC mode, the DAC MODE port is set to H and VCO in IC861 starts oscillating. (VCO does not oscillate in any other modes than DAC mode.) When there is a toss link of an external input or a coaxial digital input, the digital input signal is sent to IC861 from RXP of CN801, generating 3-line data corresponding to the input sampling frequency. At the same time, the master clock (MCK) to be used in DAC mode is also generated. For a 96kHz input, the MCK frequency is divided by 2 by IC831.

When the user selects the internal clock as the system clock, the clock generated by the crystal on the AUDIO Assy is sent to the DVD MAIN Assy. When the user selects an external sync as the system clock, the following parameters are used.

FS(kHz)	16M clock in the AUDIO Assy	18M clock in the AUDIO Assy	16M clock sent to the DVD MAIN Assy	18M clock sent to the DVD MAIN Assy
32	Oscillates	Oscillates	晶振 18M clock	
44.1	停止振荡	振荡	DIR 16M clock	晶振 18M clock
48	振荡	停止振荡	晶振 16M clock	DIR 18M clock
96	振荡	停止振荡	晶振 16M clock	DIR 18M clock

If there is no external input or locking onto the input digital signal cannot be achieved, the ERR signal at pin 43 of IC861 is set to H, and the crystal in the AUDIO Assy immediately starts oscillating. In such cases, the clock sent to the DVD MAIN Assy will always be a crystal clock.



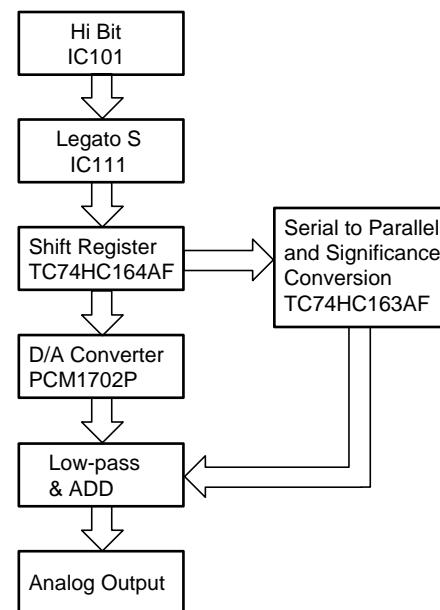
## 2.3 96K, 24-Bit, HIBIT LEGATO S SYSTEM (AUDIO ASSY)

All 16-bit and 20-bit sources are converted to 24-bit data by IC101, which lets a 24-bit data pass through.

As PCM1702P is a 20-bit D/A converter, processing of the upper 20 bits is assigned to it by the shift register.

The lower 4 bits are converted from serial to parallel, then the significance of each bit is converted digital to analog, functioning as a 4-bit D/A converter for the lower 4 bits.

By adding the lower 4 bits to the upper 20 bits in the low-pass & ADD block, D/A conversion is achieved for 24 bits.



## 3. TEST MODE

### 3.1 HOW TO ENTER THE TEST MODE

There are three following methods in an entry of the test mode.

1. Short-circuit the terminals (TP6006 and TP6007) for test mode entry at the side of the system control IC (IC601) of DVDM ASSY, and turn the power on.
2. Input [ESC] key and [TEST/RANDOM] key of the test mode remote control unit in order under the power on condition.
3. Connect a personal computer with the RS232C terminal (CN106), and input entry command (TE) of test mode from the personal computer.

Note: FL indication and LED come all to light until key operation is done when entering the test mode.

### 3.2 RELEASE THE TEST MODE

There are three following methods in a release of the test mode.

1. Turn the power off.
2. Press [ESC] key of the remote control unit. At this time, reset it for a while except for during the LD and CDV set.
3. Connect a personal computer with the RS232C terminal (CN106), and input normal mode entry command (NE) from the personal computer.

### 3.3 THE EXPLANATION OF EACH FUNCTION

The function that can be operated in the test mode is as the following.  
Use a LD remote control unit in the test mode.

#### (1) Door Open/Close

1. Press [REPEAT A-B] (48) key of the remote control unit.
2. Press [OPEN/CLOSE] key of the player from the stop condition.

#### (2) Stop

1. Press [REPEAT] (44) key of the remote control unit.
2. Press [STOP] key of the remote control unit or the player from the stop condition.

#### (3) Play 1 (Demultiplex exist which it tries to output the playback screen)

1. Press [PLAY] (17) key of the remote control unit.
  - CLD rise up at the tracking open condition. However, it becomes tracking close when entering the test mode during the play.
  - DVD rise up at the tracking close. Playback screen may not appear because the NAVI information isn't read in the test mode.

#### (4) Play 2 (Demultiplex is absent which performing trace only)

1. Press [TV/LDP] (0F) key of the remote control unit.
  - It is equal to the play 1 with CLD.
  - Perform only tracing with DVD, and there are no video and audio output.

#### (5) Pause

1. It becomes pause condition by pressing [CX] (0E) key of the remote control unit in the play.
2. Pause ON/OFF changes alternately by pressing [PAUSE] (18) key in the play.

#### (6) Search Address Input Entry

It becomes the address input mode when [+10] key (1F) is pressed. (indication for the most significant digit : > )

Indicate the last address as the initial condition in this time.

Only in case of DVD, addition search (indication for the most significant digit : + ) and subtraction search (indication for the most significant digit : - ) are able to select in order by pressing [+10] key continuously.

The address where input value was added to the present address is made to search with addition search.

The address where input value was subtracted to the present address is made to search with subtraction search.

In case of CD is only absolute time search.

Also address clear and release from the address input mode are able to perform by 2 steps by pressing [CLEAR] (45) key.

#### (7) Search Address Input

Press [0] to [9] keys of the remote control unit.

Set up the address by the hexadecimal number with DVD.

When [PROGRAM] (4C) key is pressed in the address input mode, input mode changes to hexadecimal number input (Indicates "\*" mark), and [1] to [6] keys are input as [A] to [F].

At this time, [7], [8], [9] and [0] keys are not accepted.

Also the hexadecimal number input and the decimal number input can be changed with toggle.

#### (8) Search Practice

1. Press [CHP/TIM] (13) key of the remote control unit.  
Practice the on screen no playback (Doesn't demultiplex) after the search with DVD.
2. Press [PLAY] (17) key of the remote control unit.  
Practice the on screen playback (demultiplex exists) after the search with DVD.

#### (9) Side Change

This function becomes effective when a set disk is LD.

1. Change a side on the side A from the side B when pressing [SIDE A] (4D) key of the remote control unit.
2. Change a side on the side B from the side A when pressing [SIDE B] (4E) key of the remote control unit

#### (10) Tracking Open

1. Press [STEP FWD] (54) key of the remote control unit in the play condition.
2. Switch the open/close by pressing [PLAY] key of the remote control unit or the player during the play (CD only).

## (11) Tracking Close

1. Press [STEP RVS] (50) key of the remote control unit in the play condition.
2. Switch the open/close by pressing [PLAY] key of the remote control unit or the player during the play (CD only).

## (12) Slider In

1. Press [SCAN RVS] (11) key of the remote control unit in the tracking off condition.
2. Turn the shuttle of the remote control unit in the REV direction (2C to 2F) in the tracking off condition. (DVD only)

## (13) Slider Out

1. Press [SCAN FWD] (10) key of the remote control unit in the tracking off condition.
2. Turn the shuttle of the remote control unit in the FWD direction (28 to 2A) in the tracking off condition. (DVD only)

## (14) Scan In

1. Press [SCAN RVS] (11) key of the remote control unit in the tracking on condition.
2. Turn the shuttle of the remote control unit in the REV direction (2C to 2F) in the tracking on condition.
  - DVD can be scanned only in the case of the play 2 (playback without demultiplex).

## (15) Scan Out

1. Press [SCAN FWD] (10) key of the remote control unit in the tracking on condition.
2. Turn the shuttle of the remote control unit in the FWD direction (28 to 2A) in the tracking on condition.
  - DVD can be scanned only in the case of the play 2 (playback without demultiplex).

## (16) Loading In/Out

When pressing [SKIP REV] (53) key of the remote control unit in the open condition, it loads in the clamp direction. Then it loads in the open direction when pressing [SKIP FWD] (52) key.

- This function can practice only when it is indicated with "OPEN" in FL.

## (17) Tilt Neutral

Press [SPEED DOWN] (46) key of the remote control unit.

## (18) Tilt Servo On/Off

- a. On  
Press [SPEED UP] (47) key of the remote control unit.
- b. Off  
Press [SKIP REV] (53) key and [SKIP FWD] (52) key of the remote control unit at the tilt servo on or the tilt neutral.

## (19) Tilt Down

A manual moves in the going down direction when [SKIP REV] (53) key of the remote control unit is pressed during the play at the time of tilt off.

## (20) Tilt Up

A manual moves in the going up direction when [SKIP FWD] (52) key of the remote control unit is pressed during the play at the time of tilt off.

## (21) Focus Jump +

Focus jumps in 1 layer from 0 layer when [MULTI FWD] (58) key of the remote control unit is pressed. (DVD only)

## (22) Focus Jump -

Focus jumps in 0 layer from 1 layer when [MULTI REV] (55) key of the remote control unit is pressed. (DVD only)

## (23) The First And The Second Screen Switching

Every time [DISPLAY] (43) key of the remote control unit is pressed, the contents of the version indication part (the bottom right of the screen) change. (Refer to page 17.)

## (24) Screen Display On

1. Press [DISPLAY] (43) key of the remote control unit.
2. Display on/off switches every time [PROGRAM] (4C) key of the remote control unit is pressed.
  - When [DISPLAY] key is pressed in the display on, change the part number indication of the microprocessor and revision indication.
  - Initial state is screen display on and it becomes the part number indication of the microprocessor.

## (25) Screen Display Off

1. Press [AUDIO] (1E) key of the remote control unit.
2. Display on/off switches every time [PROGRAM] (4C) key of the remote control unit is pressed.

## (26) Background Color Switching

1. Change the background color (eight colors) prepared for in advance every time [2/R] (49) key of the remote control unit is pressed in order.  
[Blue→Green→Light blue→Red→Purple→Yellow→Gray→Black→Blue ....]
2. Change the background color (eight colors) prepared for in advance every time [1/L] (4B) key of the remote control unit is pressed in order.  
[Blue→Black→Gray→Yellow→Purple→Red→Light blue→Green→Blue ....]

## (27) Video Output Switching

1. It becomes component output when pressing [DIGITAL EFFECT] (5C) key of the remote control unit.
2. It becomes composite output when pressing [STILL WITH SOUND] (5B) key of the remote control unit.

## 3.4 EXPANSION FUNCTION 1

Set the reception mode of expansion function by pressing [TEST] (5E) key of the test mode remote control unit, then expansion function is able to execute by pressing the key of [0] to [9].

Indication for the most significant digit becomes "T" during the reception mode of expansion function. (This mode can on and off with toggle.)

### (1) LD On

Turn the laser diode to on by pressing [TEST] and [1] keys in order.

### (2) Focus On

Focus locks by pressing [TEST] and [2] keys in order.

### (3) Focus Sweep

Repeat focus sweep by pressing [TEST] and [3] keys in order.

### (4) Spindle FG Servo

Rising up the spindle and FG servo becomes on by pressing [TEST] and [5] keys in order.

### (5) AGC On/Off

Switch the AGC on and off with toggle by pressing [TEST] and [7] keys in order.

### (6) Jitter Value Indication.

It becomes the jitter-value indication mode by pressing [TEST] and [DIG/ANA] keys in order.

### (7) DSP coefficient indication of FTS system.

Set up the address (four digits) of the coefficient that it wants to see by the point of search address input, then real time indicates the coefficient in OSD by pressing [TEST] and [9] keys in order.

### (8) CD Error Rate Indication

Indicate the value in OSD after measuring is completed by pressing [TEST] and [0] keys in order after set up the measuring time (1 to 8 seconds) by the point of search address input.

## 3.5 EXPANSION FUNCTION 2

Set the reception mode of expansion function 2 by pressing [HILITE/INTRO] (55) key of the remote control unit, then expansion function 2 is able to execute by pressing the key of [0] to [9].

### (1) Forced DVD Setting

In the checker mode, set up the condition that DVD is attached forcibly except for the result of disc distinction by pressing [HILITE/INTRO] and [1] keys in order.

In the no checker mode (normal test mode), once execute the setting but abandon it soon.

Therefore, perform the disc distinction again for the safety when rising up the player in this condition.

### (2) Forced CD Setting

In the checker mode, set up the condition that CD is attached forcibly except for the result of disc distinction by pressing [HILITE/INTRO] and [3] keys in order.

In the no checker mode (normal test mode), once execute the setting but abandon it soon.

Therefore, perform the disc distinction again for the safety when rising up the player in this condition.

### (3) Execute The Disk Distinction

In the checker mode, execute the disc distinction result by pressing [HILITE/INTRO] and [0] keys in order.

## 3.6 List of Test Mode Function

Contents of Command	Condition	Key Name of Remote Control Unit	Mode of Remote Control Unit
Open	STOP	REPEAT A	A8-48
Close	OPEN	REPEAT A	A8-48
Stop	PLAY	REPEAT B	A8-44
Play (DVD is only tracing.)	STOP	TV/LDP	A8-0F
Play (DVD is with decode.)	STOP	PLAY	A8-17
Pause on	PLAY	CX	A8-0E
Pause on/off	PLAY/PAUSE	PAUSE	A8-18
Search address input (0 to 9) *Use for other numerical value input		0 to 9	A8-00 to 09

# DV-505, DVL-909, DV-S9

Contents of Command	Condition	Key Name of Remote Control Unit	Mode of Remote Control Unit
Search address input (A to F)	During address input	PGM+1 to 6	
①Search address clear ②Escape the search input mode	During address input Address = 0	CLEAR	A8-45
Change the search address input mode (Off→absolute address→addition→subtraction→Off) *Use for other numerical value input.		+10	A8-1F
Search execution (ignore the wrong address)		CHAP/TIME	A8-13
Side change (side B→side A)	LD	SIDE A	A8-4D
Side change (side A→side B)	LD	SIDE B	A8-4E
Tracking open	PLAY	STEP FWD	A8-54
Tracking close	PLAY	STEP REV	A8-50
Slider in	TR : Off	SCAN REV Shuttle REV	A8-11 A8-2C to 2F
Low speed scan REV	TR : On	SCAN REV	A8-11
Scan REV (Jump number is variable)	TR : On	Shuttle REV	A8-2C to 2F
Slider out	TR : Off	SCAN FWD Shuttle FWD	A8-10 A8-28 to 2B
Low speed scan FWD	TR : On	SCAN FWD	A8-10
Scan FWD (Jump number is variable)	TR : On	Shuttle FWD	A8-28 to 2B
Loading in	STOP	SKIP REV	A8-53
Loading out	STOP	SKIP FWD	A8-52
Tilt neutral		SPEED DOWN	A8-46
Tilt servo on		SPEED UP	A8-47
Tilt servo off	Tilt : On/N	SKIP REV SKIP FWD	A8-53 A8-52
Tilt up	PLAY	SKIP FWD	A8-52
Tilt down	PLAY	SKIP REV	A8-53
LD on		TEST + 1	A8-5E + A8-01
Focus on		TEST + 2	A8-5E + A8-02
Focus sweep		TEST + 3	A8-5E + A8-03
Focus jump +		MULTI FWD	A8-58
Focus jump -		MULTI REV	A8-55
Spindle FG on		TEST + 5	A8-5E + A8-05
AGC on/off	AGC : Off/On	TEST + 7	A8-5E + A8-07
Indication of the FTS coefficient	After the address four-digit input	TEST + 9	A8-5E + A8-09
CD error rate indication	PLAY	TEST + 0	A8-5E + A8-00
Jitter indication		TEST + DIG/ANA	A8-5E + A8-0C
Screen indication on/Switching of the first screen and second screen	OSD Off/On	DISPLAY	A8-43
Screen indication off	OSD : On	AUDIO	A8-1E
Screen indication on/off		PROGRAM	A8-4C
Switching of ID display methods (decimal/hexadecimal)		DIG/ANA	A8-0C
DISC type designation • Forced designation to DVD • Forced designation to CD • Request for Disk sensing	STOP	HILITE/INTRO +1 +3 +0	A8-5A +A8-01 +A8-03 +A8-00
Tray close of disk sense inhibition	Checker mode	REPEAT A	A8-48
Background color (eight colors) switching		2/R	A8-49
Background color (eight colors) switching (reverse toggle)		1/L	A8-4B
Video : component output		DIGITAL EFFECT	A8-5C
Video : composite output		STILL WITH SOUND	A8-5B

## ● Special Mention Item

(1) Indications for the spindle status are as follows:

A/B : Spindle accelerator and brake

FG : FG servo

SRV : Rough, velocity/phase servo

O\_S : Offset addition, rough, velocity/phase servo

(2) The movement of loading in/out starts from the tray open status.

After that, this function is executed unless a play and close operation are done.

(3) There are three methods for entering a search address:

① Absolute address designation

→ Searching for the address entered (indication for the most significant digit :>)

② Additional input

→ Searching for the address with the current ID number plus an entered number

(indication for the most significant digit :+)

③ Subtractive input

→ Searching for the address with the current ID number minus an entered number(indication for the most significant digit :-)

The above modes can be changed by pressing [10] key.

Note : A number for addition or subtraction must be entered in hexadecimal.

(4) If you turn the power on while short-circuiting the short-circuit terminal at the side of the system controller, the player will forcibly enter the test mode. If the FL controller is set to Checker mode, disc sensing will not be started, even if a disc is loaded. Disc sensing will also not be performed if the tray is open/closed by your pressing [REPEAT A] key while in Checker mode.

However, disc sensing will be started if the [OPEN/CLOSE] key on the player or on the remote control unit is pressed.

(5) If disc-type designation is forcibly executed during a mode other than Checker mode, the system controller will abandon disc-type designation after setting the mechanism controller. Therefore, after startup of the player, disc sensing will be performed again for safety.

If disc-type designation is forcibly executed during Checker mode, as disc-type designation is not abandoned, playback will be immediately started.

(6) A background color change in order of blue → green → light blue → red → purple → yellow → gray → black → with the [2/R] key.

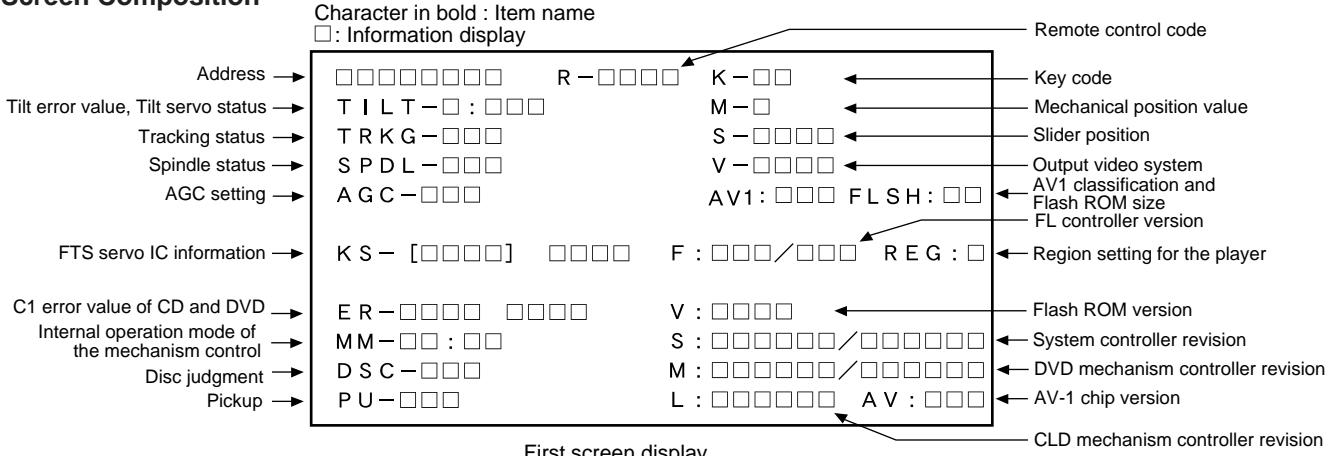
It changes in order of gray → yellow → purple → red → light blue → green → blue → black → in the case of the [1/L] key.

(7) In case of PD0260A\*, tilt servo on function may not move with DVD.

## 3.7 Test Mode Screen Display (The Second Generation)

Consecutive double-OSD display is supported during test mode. The screen is composed 10 lines with a maximum of 32 characters per line. It can't be used with the debugging display mode together.

### • Screen Composition

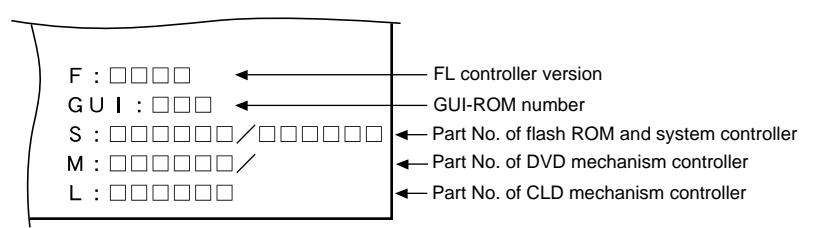


### Caution :

The first screen and second screen switch by pressing [DISPLAY] key of the remote control unit.

It is only a version display part on the lower right of the screen those contents of display change.

ATB : ON/OFF information display and AGC manual establishment display deleted with the second generation.



Second screen display (at lower right portion of the screen)

## • Description of Each Item on the Display

### (1) Address indication

The address being traced is displayed in number.

DVD	: ID indication (hexadecimal number, 8 digits)	[*****:****]
CD/LD (CLV)	: A-TIME (min. sec.)	[○○○○:****]
LD (CAV)	: FRAME	[○○○:****]
(Note : For DVDs, decimal-number indication is possible.)		

### (2) Code indication of the remote control unit [R-\*\*\*]

The code for the key pressed on the remote control unit, which is received by the FL controller, is displayed while the key is pressed. In the case of the double code, the second code will be displayed.

### (3) Key code indication for the main unit [K-\*\*]

The code for the key pressed on the main unit, which is received by the system controller, is displayed while the key is pressed.

### (4) Tilt error value, Tilt servo status [TILT-\*:\*\*\*]

Tilt error value :	[0] to [F]
Tilt servo status :	
Tilt neutral	[N]
Tilt servo on	[ON]
Tilt servo off	[OFF]

### (5) Tracking status [TRKG-\*\*\*]

Tracking on	[ON]
Tracking off	[OFF]

### (6) Spindle status [SPDL-\*\*\*]

Spindle accelerator and brake	[A/B]
FG servo	[FG]
Rough, velocity phase servo	[SRV]
Offset addition, rough, velocity phase servo	[O_S]

### (7) Mechanism position value [M-\*]

Position code	[0] to [8]
---------------	------------

### (8) Slider position [S-\*\*\*]

CD TOC area	[IN ]
CD active area	[CD ]
CDV video area	[CDV ]
LD active area	[LD ]
Side B inside	[B IN]

### (9) AGC setting [AGC-\*\*]

AGC on	[ON]
AGC off	[OFF]

### (10) Output video system [V-\*\*\*]

NTSC system	[NTSC]
PAL system	[PAL ]
Auto-setting	[AUTO]

### (11) FTS servo IC information

Indications for the following two types of information can be switched:

① DSP coefficient indication	[KS-[****] ****]
Displays the address (four digits) of the specified coefficient and the setting value (four digits) with [TEST] and [9] keys.	
② Jitter value indication	[JT-[○○○○]****]
Displays the jitter value (four digits) with [TEST] and [DIG/ANA] keys.	

### (12) Error rate indication

① C1 error value of CD	[ER-C1 **** ]
② C1 error value of DVD	[ER-**** ****]

### (13) Internal operation mode of mechanism controller

[MM-\*\*:\*\*]

Internal mechanism mode (2 digits) and internal mechanism step (2 digits) of the mechanism controller

Note : For details, see the specifications of the mechanism controller.

### (14) Disk sensing [DSC-\*\*\*]

The type of discs loaded is displayed.  
[DVD], [CD ], [CDV], [LD ], [VCD], [ ]

### (15) Pickup [PU-\*\*\*]

The pickup being operating is displayed.

DVD	[DVD]
CLD	[CLD]

### (16) Destination setting of the FL controller

[F:\*\*\*/\*\*]

Three characters in front represent the type of model:

- 505: DV-505, S9: DV-S9
- 606 : DV-606D, EDU: for education
- 909: DVL-909, K88: DVL-K88.

Three characters that follow represent the destination code.

- J : /J, K: /KU, /KC, /KU/KC, RAM: /RAM (China)
- RL : /RL, WY: /WY, RD: /RD.

\* Furthermore DVL-91/KU/CA indicates as L91/K.

### (17) Region setting of the player [REG:\*

Setting value [1] to [6]

### (18) Version of the flash ROM [V:\*.\*\*]

### (19) Revision of the system controller [S:\*,\*\*\*/\*,\*\*]

① Revision number of the external ROM part (flash ROM) of the system controller	<Front>
② Revision of the internal ROM part of the system controller	<Rear>

**(20) Revision of the DVD mechanism controller****[M:\*.\*\*\*/\*.\*\*\*]**

① Revision number of the external ROM part (flash ROM) of the DVD mechanism controller <Front>  
 ② Revision of the internal ROM (core part) of the DVD mechanism controller <Rear>

**(21) Revision of the CLD mechanism controller****[L:\*.\*\*\*]****(22) Version of the AV-1 chip [AV:\*.\*]****(23) Version of the FL controller [F:\*.\*]****(24) Control number of the GUI-ROM [GUI:\*\*\*]****(25) The part number of the flash ROM and system controller [S : \*\*\*\*\*/\*\*\*\*\*]**

① Part number of the flash ROM <Front>  
 (Example) VYW1536-A → W1536A  
 (Example) PD626A9 → 6256A9

② Part number of the system controller <Rear>  
 (Example) PD3381T1 → 3381T1

**(26) Part number of the DVD mechanism controller**

(Example) PD4889A0 → 4889A0

**(27) Part number of the CLD mechanism controller**

(Example) PD0260A2 → 0260A2

**(28) AV1 classification [AV1 : \*\*\*]**

RAM, E/A, S/C

**(29) Flash ROM size [FLSH : \*\*]**

8M : 8M bit, 4M : 4M bit

**3.8 DESCRIPTIONS OF NEW FUNCTIONS IN TEST MODE****3.8.1 Error Rate****● Overview**

The error rate of CDs can be measured on basic models, such as the DV-505, and that of CDs as well as LDs with sub-Q codes can be measured on DVD/LD-compatible models, such as the DVL-909. The value is displayed in decimal and indicates the number of C1 errors (including the corrected ones) counted during the specified measurement time.

An indeterminate measurement result may be caused by a dirty disc, decentering, surface deflection, birefringence (double reflection), or a pickup problem (dirty lens, etc.), misadjustments of the pickup, improper automatic adjustment, or incomplete adjustments. On the manufacturing line, the value is used for yes/no decision of pickups. Normally, for a measurement for 5 seconds, the value may be less than 10 with a clean disc and less than 100 with a disc with some damage.

**● Using the Function in Test Mode (The Remote Control Keys to be Used are Indicated in Brackets)**

- (1) Set the CD to trace (playback) state.
- (2) Set the player to Number input mode by pressing [+10] and enter the measurement time in a range of 1 to 5 (sec.).
- (3) Start measurement by pressing [TEST] + [0]. The SubQ counter stops during measurement, but this is not a malfunction. When the specified measurement time has elapsed, the result is indicated to the right of "ER C1 -" on the screen.  
 If you skip step 2, the measurement time is set to 5 (sec).

**3.8.2 Jitter Value****● Overview**

The jitter values of DVDs and CDs can be displayed on basic models, such as the DV-505, and those of DVDs can be displayed on DVD/LD-compatible models, such as the DVL-909.

The displayed value shows a voltage in three-digit decimal as ○.○○ V. For example, the indication "0278" means 2.78 V. The larger the value, the worse the jitter. The worst value is 3.25 V. When playing a DVD or a video CD with which the jitter value is extremely high, mosaics may be seen. As with the error rate, the jitter depends on the disc and pickup. The jitter value to be displayed has no close correlation with a jitter measuring device, and is to be regarded just for reference.

Reference : When the jitter value is 2.9 V or more with a DVD, or 3.0 V or more with a CD (or a video CD), it may cause a problem (mosaic, audio distortion, etc.) in playback.

**● Using the Function in Test Mode (The Remote Control Keys to be Used are Indicated in Brackets)**

- (1) Set the DVD or CD to trace (playback) state with AGC OFF.
- (2) Press [TEST] and [DIGITAL/ANALOG].  
 The current jitter value appears to the right of "JT:○○○○" on the display. The jitter value keeps changing unless any additional key operation is made.

Note : Although a value may be displayed on the screen even with AGC ON, this is NOT a jitter value.

The jitter value with AFB ON cannot be displayed (see the next section). The jitter value with AFB ON can be obtained only by directly measuring the voltage at the JV connector (pin 94) of the servo DSP (LC78650).

## 3.8.3 Startup Sequence

The basic flow is shown below. The parentheses indicate a limitation: “base” represents base models, such as the DV-505 and DV-S9, and “compatibles” represents DVD-LD compatible models, such as the DVL-909.

- (1) Closes the tray.
- (2) Runs the tilt servo for 1.5 seconds (compatibles).
- (3) Detects the peak.
- (4) Distinguishes the disc.
- (5) SGC
- (6) Turns on the focus servo.
- (7) Turns on the tilt servo (compatibles).
- (8) Starts the spindle rotation.
- (9) ATB
- (10) Measures the MIRR modulation degree.
- (11) Turns on the tracking servo.
- (12) Turns on the slider servo.
- (13) Turns on the spindle servo.
- (14) Focus AGC
- (15) Tracking AGC
- (16) AFB
- (17) Plays AGC (base for CDs)
- (18) Plays back.

- \* For a 2-layer DVD, steps (9) through (16) are repeated for each layer.
- \* When starting up with [TV/LDP] in Test mode, all the steps (1) to (18) are performed for a DVD, and steps (1) to (10) are performed for a CD.

## 3.8.4 Peak Detection

### ● Overview

This is a new function to measure the size and location of the sine wave related to focus errors at the beginning. The measurement is performed in the normal startup process and in Test mode, as well. If the sine wave is small, the OE IC gain is switched. Only the judgment for NO DISC is accomplished at this time. The operation is in effect as for judgment for DISC.

### ● Using the Function in Test Mode

This function is not assigned to any remote control keys. Only an open/close operation can trigger the function.

## 3.8.5 Disc Distinction

### ● Overview

This function is almost the same as that with the first-generation models. The only difference is as follows: If an error occurs in the startup sequence and playback cannot be started, startup is retried after forcibly switching the disc distinction from DVD to CD or vice versa by a backup process. If startup fails again, it is canceled, and an error is generated. The types of error that triggers the backup process for disc distinction are discussed in the next section.

### ● Using the Function in Test Mode

This function is not assigned to any remote control keys. Only an open/close operation can trigger the function.

## 3.8.6 SGC

### ● Overview

This is a new function to maintain the sine wave related to focus errors to a certain size so that the sine wave shows 1.8 V for the P-to-P value.

This operation is performed each time after judging disc presence and distinction in the normal startup process and in Test mode, as well. The operation is achieved by switching the FE gain inside the RF IC (LA9700) by using the voltage at the SGC connector (pin 22) of the RF IC.

### ● Using the Function in Test Mode

This function is not assigned to any remote control keys. Only an open/close operation can trigger the function.

## 3.8.7 Measurement of MIRR Modulation Degree

### ● Overview

The slice voltage of the RF signal is measured and used in the calculation to generate the MIRR signal. This operation is made in synchronization with ATB ON/OFF in normal startup and in Test mode, as well.

## 3.8.8 AFB (Auto Focus Bias) Function

### ● Overview

Among the first-generation models, this function supports only CDs with the basic models, such as the DV-7. Among the new models, this function supports DVDs with all models, but CDs only with the basic models. The operation is executed only once (once for each layer for a 2-layer DVD) after the focus and tracking AGC at startup. The operation is accomplished not by centering the focus servo to Vref (2.5 V), but by gradually changing the center value for the optimum jitter value. Thus, performance with an improper or dirty disc (by fingerprints, etc.), or the temperature characteristics (at 0°C, 35°C, etc.) will be improved.

### ● OverviewUsing the Function in Test mode (the Remote Control Keys to be Used are Indicated in Brackets)

As the function is to be synchronized with AGC, turn on and off AFB by pressing [TEST] + [7]. The jitter value measurement cannot be made with AFB ON.

## 3.8.9 PLAY AGC

### ● Overview

The SGC voltage is adjusted during playback according to the RF signal level. (For details on SGC, see section 3.8.6.) Only for CDs in basic models, such as the DV-505 (including the DV-S9), this adjustment is made only once immediately after AFB during startup. In Test mode, it synchronizes with AGC ON/OFF. The operation is achieved through adjustment in the Servo DSP (LC78650), and the SGC voltage is output via AUX0 (pin 44).

### ● Using the Function in Test Mode (the Remote Control Keys to be Used are Indicated in Brackets)

As the function is to be synchronized with AGC, turn on and off AFB by pressing [TEST] + [7].

## 3.9 Additional Descriptions of Error Generation

This section describes the major errors of the mechanism-control computer.

### (1) DISC Distinction Error (Error 38)

The most common error. The tracking overcurrent error (Error c3), Defocus error (Error 33), spindle errors (Errors 41 to 4b), auto sequence errors (Errors 51 to 55) and code misread errors (71 to 74) often lead to this error.

### (2) Search Errors (Errors 11, 12, 19)

Almost all cases where playback suddenly stops may involve these errors. They may be generated because of defects on the disc, or if the pickup goes too far over the inner periphery with DVD/LD-compatible models. As with the code misread errors below, they can also be generated by a dirty disc or bad jitters.

### (3) Code Misread Errors (Errors 71 to 74)

Almost all cases where the inserted disc does not start or immediately stops playing may involve these errors. They may be generated because of a dirty disc or bad jitters. A bad jitter may be caused by a dirty disc, decentering, surface deflection, birefringence (double reflection), or a pickup problem (dirty lens, etc.), misadjustments of the pickup, improper automatic adjustment, or incomplete adjustments.

### (4) Spindle Errors (Errors 48, 49)

An FG transition timeout (Error 48) may be generated because of instability of the FG signal or unavailability of spindle drive voltage. A PLL transition timeout (Error 49) can be generated with a dirty disc.

### (5) Automatic Sequence Errors (Errors 51 to 55)

If any automatic sequence (auto execution command) of the servo DSP is not completed, these errors are generated. The causes differ among error numbers. They may be caused by abnormalities in the communication line between the mechanism-control computer (PD4889A) and the servo DSP or instability of the XABUSY connector (pin 38) of the mechanism-control computer.

### (6) DSP Communication Errors (Errors a1 to a6)

These errors will be generated if the mechanism-control computer cannot properly communicate with the servo DSP. They may be caused by instability of the XCBUSY connector (pin 8) of the mechanism-control computer, instability of the communication line between the mechanism-control computer and the servo DSP, or a defect in the servo DSP.

### (7) DVD Block Noise, etc.

Block noise and momentary picture freeze (\*) with a DVD are not regarded as errors, but the causes of these symptoms in the Servo system may be:

- (1) A search takes a long time (leading to a search error if it worsens).
- (2) Codes cannot be read clearly (leading to a code misread error if it worsens).

If the value to the right in the “ER: ○: ○e-” indication displayed on the screen by pressing the ESC and DISP keys of the remote control in Test mode is greater than 5, the cause may be (1). If the value is less than 3, the cause may be (2).

- (\*) With a specific 2-layer disc with which playback continues from layer 1 to 2 or vice versa, the picture may be seen momentarily stop. This may be attributed to the performance of the player. Players of other manufacturers have the same symptoms to varying degrees.

## 4. IC INFORMATION

- The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

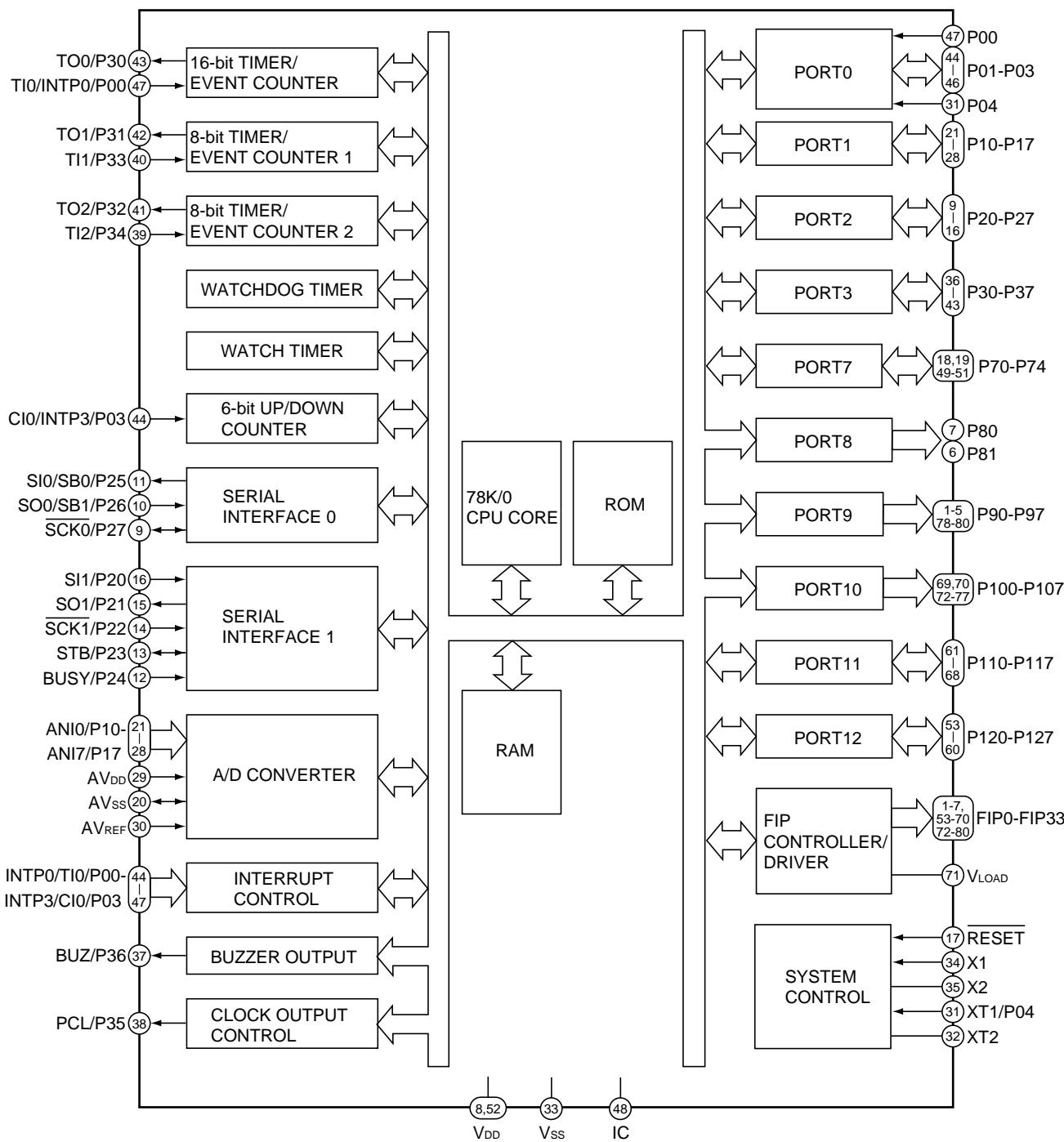
- **List of IC**

PD4890A, PD0260A2, PD0261A2, LA9700M, BA6195FP, LC78650E-P, PD4889A, SRM2B256SLMX70, VYW1536, PD3381A, MB86371, MB811171622A-100FN, CY2081SL-611, PD2058A

### ■ PD4890A (FLKB ASSY : IC101)

- Mode Control IC

- **Block Diagram**



● Pin Function

No.	Mark	Pin Name	I/O	Function
1	P94	G7	O	FL timing output H : ON
2	P93	G6		
3	P92	G5		
4	P91	G4		
5	P90	G3		
6	P81	G2		
7	P80	G1		
8	VDD	VCC	—	Power supply pin
9	P27	(NC)	O	Not used
10	P26	(NC)		
11	P25	(NC)		
12	P24	LAMP	O	DVD lamp ON/OFF H : ON
13	P23	XREADY	O	Communication handshake line with the system controller L : Permit the communication
14	P22	SCK	I/O	Communication clock output with the system controller
15	P21	SO	I/O	Communication data output with the system controller
16	P20	SI	I	Communication data input with the system controller
17	RESET	RESET IN	I	Reset input L : reset
18	P74	(NC) (DV-505) SIDE A LED (DVL-909)	O	Not used SIDE A LED ON/OFF L : ON
19	P73	(NC) (DV-505) SIDE B LED (DVL-909)	O	Not used SIDE B LED ON/OFF L : ON
20	AVss	Vss	—	GND pin
21	P17	POWER ON	O	SW 5V ON/OFF H : ON
22	P16	RESET OUT	O	System reset output L : reset
23	P15	(NC)	O	Not used
24	P14	(NC)		
25	P13	KIN1	I	Key input
26	P12	KIN0		
27	P11	MS1	I	Destination judgement input
28	P10	MS0		
29	AVDD	AVDD	—	Power supply pin
30	AVREF	AVREF	—	Reference voltage
31	P04	P04	I	Not used
32	XT2	(NC)	—	Not used
33	VSS	VSS	—	GND pin
34	X1	X1	I	Connect a microprocessor clock
35	X2	X2	—	
36	P37	(NC)	O	Not used
37	P36	(NC)		
38	P35	(NC)		
39	P34	P34	I	Not used
40	P33	P33		

# DV-505, DVL-909, DV-S9

No.	Mark	Pin Name	I/O	Function
41	P32	P32	I	Not used
42	P31	P31	I	Not used
43	P30	(NC)	I	Not used
44	P03	P03	I	Not used
45	P02	ON POWER	I	Switch the STBY/POWER ON at rising edge the FL controller L : STBY
46	P01	LT	I	Communication handshake line with the system controller H : Permit the communication
47	P00	SEL IR	I	Remote control signal input
48	IC	IC	-	—
49	P72	(NC)	O	Not used
50	P71	FL OFF LED (DV-505)	O	FL OFF LED ON/OFF L : ON
		(NC) (DVL-909)	O	Not used
51	P70	(NC)	O	Not used
52	VDD	VDD	-	Power supply pin
53	P127	(NC) (DV-505)	O	Not used
		FL OFF LED (DVL-909)	O	FL OFF LED ON/OFF H : ON
54	P126	(NC)	O	Not used
55	P125	(NC)		
56	P124	(NC)		
57	P123	(NC)		
58	P122	(NC)		
59	P121	(NC)		
60	P120	(NC)		
61	P117	P15	O	FL segment output H : ON
62	P116	P14		
63	P115	P13		
64	P114	P12		
65	P113	P11		
66	P112	P10		
67	P111	P9		
68	P110	P8		
69	P107	P7		
70	P106	P6		
71	VLOAD	-27V	-	-27V input H : ON
72	P105	P5	O	FL segment output H : ON
73	P104	P4		
74	P103	P3		
75	P102	P2		
76	P101	P1	O	FL timing output H : ON
77	P100	G11		
78	P97	G10		
79	P96	G9		
80	P95	G8		

## ■ PD0260A2, PD0261A2 (CLDM ASSY : IC101)(DVL-909 ONLY)

- Mechanism Control IC

- Pin Function

No.	Pin Name	I/O	Function
1	VCC	I	Power supply pin Apply 5V ± 10%
2	RWC	O	DSP read/write command signal output "L"= Read "H"= Write
3	XPLAY	O	Signal output during spindle servo "L"= During servo "H"= During acceleration, brake and stop
4	CLK:SCK3/CQCK	O	DVP/DSP clock switch "H"= DVP "L"= DSP
5	XCD	O	LD/CD switch signal output "L"= CD "H"= LD
6	TILT ERR	I	A/D • This signal is A/D converted as the tilt servo control input. Control the tilt motor so that this signal becomes 2.5V.
7	TRK BAL ERR	I	A/D • Tracking balance error signal input This signal is A/D converted as the tracking offset control input.
8	SLD ERR	I	A/D • This signal is A/D converted as the slider servo control input. Control the slider motor so that this signal becomes 2.5V.
9	SLD POS	I	A/D • Pickup position detection switch input Detect the position by reading A/D input value which each switches are resistance divided.
10	FSEQ	I	Subcode sync. confirmity detection signal input "L"= Not confirmity "H"= Confirmity
11	C DETECT	I	Spindle over-current detection signal input "L" = Over current "H"= Normal
12	TRK BAL DRV	O	PWM • Output the tracking offset signal to PWM output, then use for auto tracking offset. 910 µsec period, tri-state control H, L, Z
13	SHAKE	I/O	Handshake signal for data communication with the DVD mechanism control IC This pin is the bilateral data line and each microprocessor control the Input/Output.
14	RF CORRECTION	O	RF correction switch signal output "H"= Gain UP CD, CDV-A:Low, CAV inner circuit gain up, others are High.
15	SQOUT	I	Command data input from DSP Read out SUBQ
16	SO3/COIN	O	Command data output to DVP/DSP
17	SCK3/CQCK	O	DVP/DSP read/write command clock output Read-in at rising edge
18	SLD OUT	O	PWM • Slider control signal output 5V= FWD, 0V= REV, 2.5V= STOP 910 µsec period, tri-state control
19	SI1	I	Data input from the DVD mechanism control IC
20	SO1	O	Serial data output to the DVD mechanism control IC
21	SCK	I/O	Clock for serial communication with the DVD mechanism control IC Becomes input mode without communicate with the DVD mechanism control IC
22	TRK 0 CRS	I	INT • Tracking error zero cross signal input Monitor this signal when searching track count in the miss clamp detection
23	SBSY	I	Subcode block sync. input
24	TI LT OUT	I/O	LOAD/TILT control output PWM output 0V : Tray IN / Tilt DOWN, 5V : Tray OUT / Tilt UP, 2.5V : STOP
25	TURN OUT	O	Turn drive signal output
26	XPBV	I	Playback vertical sync. signal input of LD/CDV "L"= During vertical sync.
27	CNVSS	I	Ground for A/D conversion
28	XRESET	I	Reset signal input "L"= Reset "H"= Release reset Control with the DVD mechanism control IC.
29	XIN	I	9MHz clock oscillation input
30	XOUT	O	9MHz clock oscillation output

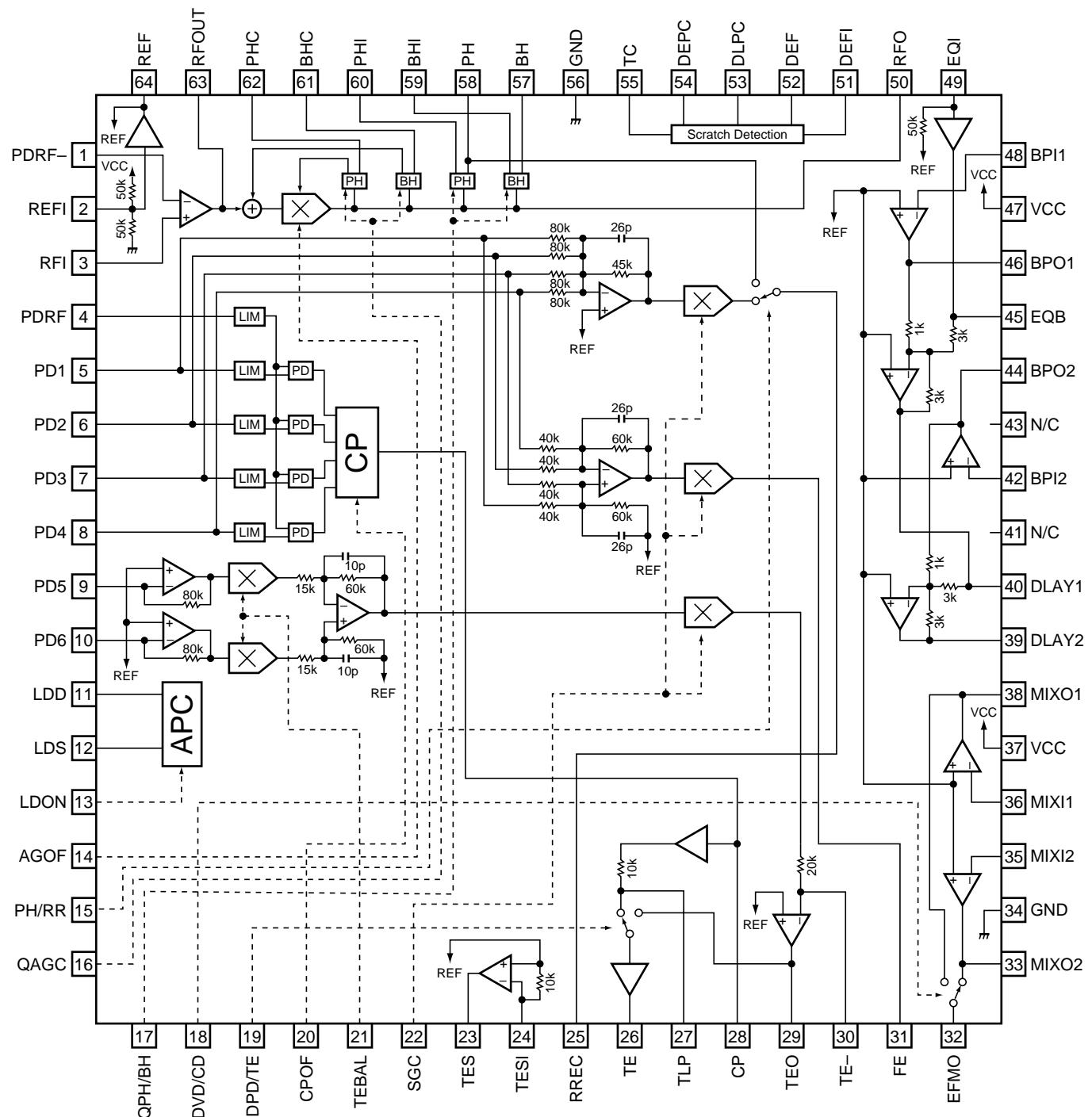
# DV-505, DVL-909, DV-S9

No.	Pin Name	I/O	Function
31	PHAI	O	Not used
32	GND	I	Ground
33	SW1	I	Switch input for Loading/Tilt position detection
34	SW3		
35	SW2		
36	TBCLOCK	I	Spindle lock signal input "L"= Unlock "H"= Lock
37	FG	I	Spindle motor FG signal input 16 outputs per rotation Used after dividing by 2 in the microprocessor
38	DATA	I	Input for Phillips code decoder with built-in mechanism controller
39	XPBH	I	Playback H-SYNC input for Phillips code decoder
40	XPBV	I	Playback V-SYNC input for Phillips code decoder
41	DEXT	O	Control signal output of video dynamic range extension "H"= ON "L"= OFF
42	WFM/VLOCK	I	Field discrimination signal from DVP "H"= ODD "L"= EVEN (with memory) VLOCK signal at clear scan (with no memory)
43	LATMEM	O	Serial control latch output of memory control IC PD3212A Latches at falling edge.
44	XPFR	O	PD0260A2 : 17MHz PLL control signal output H : Phase comparison L : Free-run PD0261A2 : Not used
45	XP/N2	O	PD0260A2 : NTSC/XPAL circuit switching signal output excepting VDEM H : NTSC L : PAL PD0261A2 : Not used
46	HQ	O	PD0260A2 : Control signal output of the High Quality circuit (analog NR) H : Through the HQ circuit L : Not through PD0261A2 : Not used
47	THLD	I	Track jump accelerating / decelerating signal input "L"= Others "H"= During accelerating / decelerating
48	LATDVP	O	PD6159B serial latch signal output Latches at falling edge.
49	SELTZC	O	TZC switch signal output "H"= at normal "L"= at CD/DVD disc discrimination
50	DOCINH	O	Control the clamp pulse and clamp killer circuit by tri-state value
51	XP/N1	O	PD0260A2 : NTSC/XPAL circuit switching signal output for VDEM H : NTSC L : PAL PD0261A2 : Not used
52	NROFF	O	Noise reduction control output by VDEM "L"= Normal "H"= Not NR
53	DSCDET	I	Disc present/absent detecting signal input by the tilt sum in the DVD P.U. mode "H"= Absent "L"= Present DEFECT input at LD P.U.
54	XTURNB	I	Turn switch input "H"= Side A / turn "L"= Side B
55	XTURNA	I	Turn switch input "H"= Side B / turn "L"= Side A
56	XLPO	I	LD P.U. out position detecting switch input "H"= LD P.U. active "L"= LD P.U. out position
57	VDET	I	Use for power abnormal signal input port "L"= Normal "H"= Abnormal
58	XFOK	I	Focus servo lock signal input "L"= Lock "H"= Unlock Use for lock detection of focus servo
59	WRQ	I	Subcode Q reading OK signal input "L"= NG "H"= OK This pin will be H when subcode Q data passed by CRC check.
60	AC3MUTE	O	Mute control signal output for AC3 Release MUTE during playback. "L"= Release MUTE "H"= MUTE
61	SQ1	O	Analog audio switching signal output 1/L "L"= Squelch OFF "H"= Squelch ON
62	SQ2	O	Analog audio switching signal output 2/R "L"= Squelch OFF "H"= Squelch ON
63	XCX	O	Analog audio CX noise reduction switching signal output "L"= CX ON "H"= CX OFF
64	XANA	O	Digital / Analog audio switching signal output "L"= Analog "H"= Digital

## ■ LA9700M (DVDM ASSY : IC101)

- RF IC

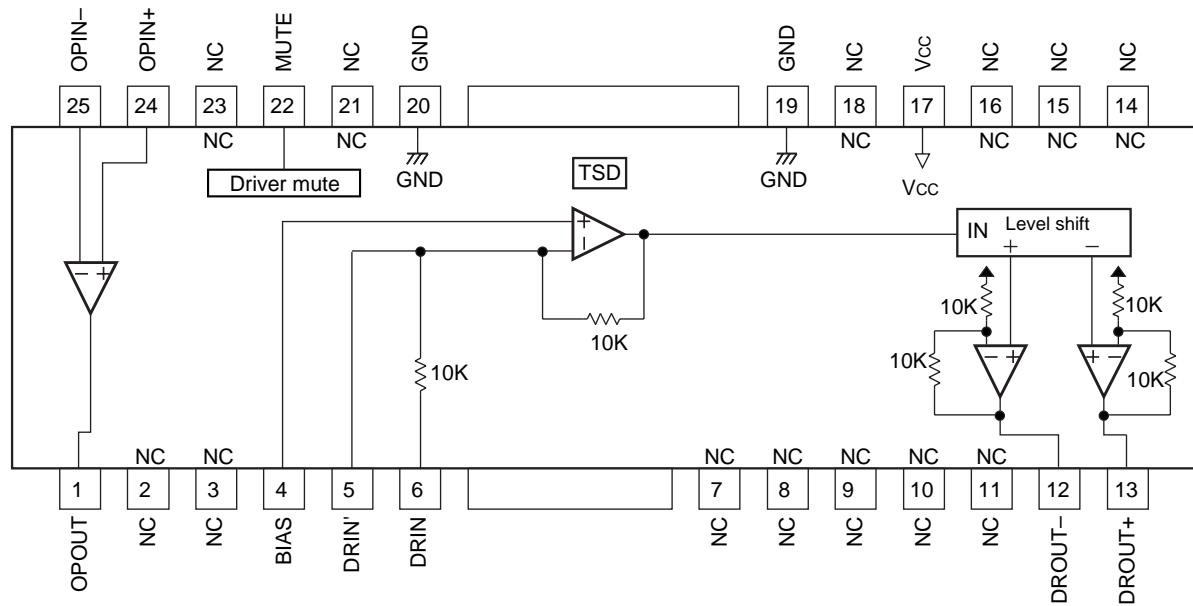
- Block Diagram



■ BA6195FP (DVDM ASSY : IC161)

- Spindle Driver

- Block Diagram



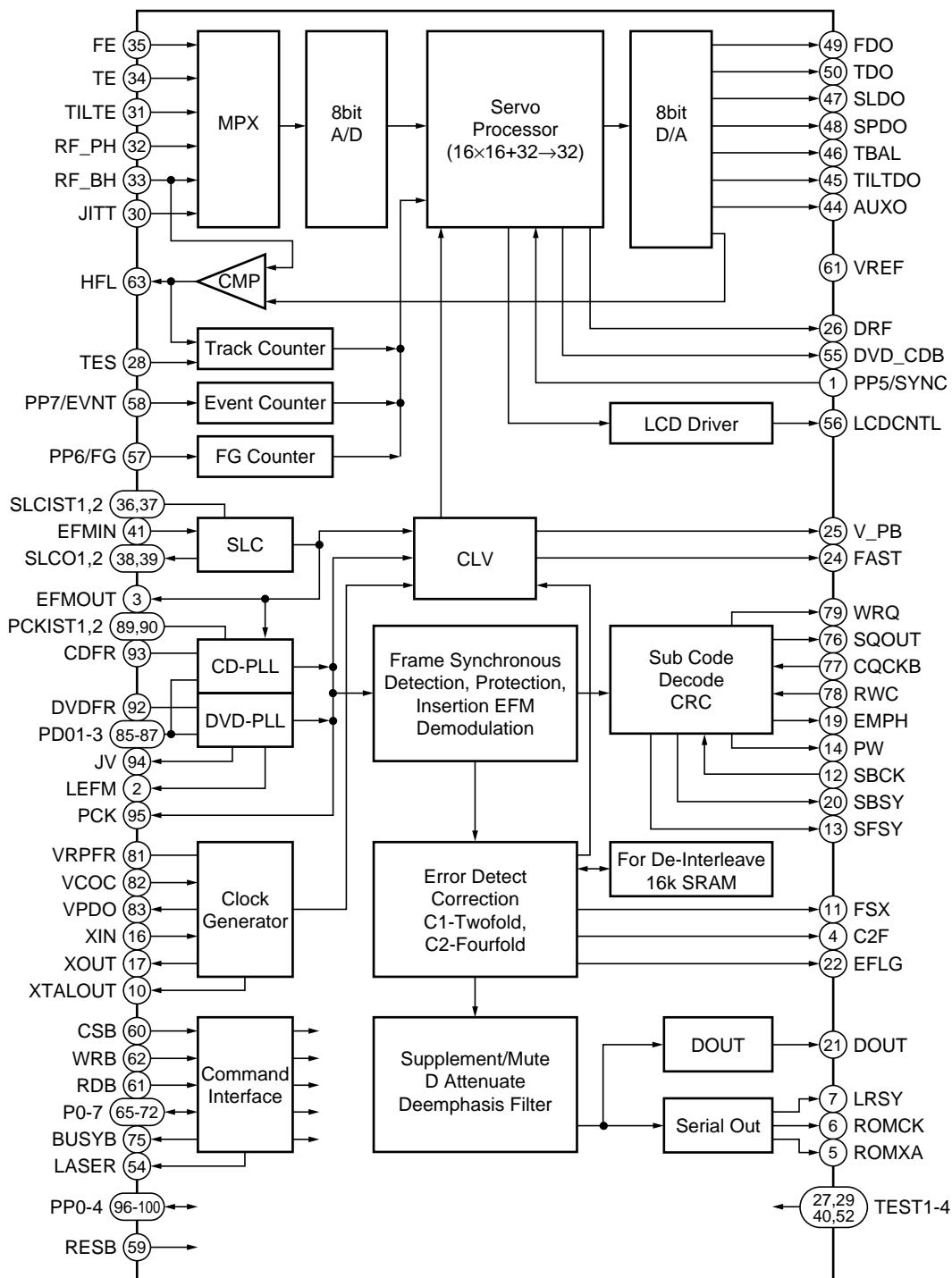
- Pin Function

No.	Pin Name	Function	No.	Pin Name	Function
1	OPOUT	OP amp. output pin	14	N.C.	
2	N.C.		15	N.C.	Non Connection
3	N.C.		16	N.C.	
4	BIAS	Bias pin	17	VCC	Power supply pin
5	DRIN'	Driver gain adjustment pin	18	N.C.	Non Connection
6	DRIN	Driver gain input pin	19	GND	Sub-strait GND pin
7	N.C.		20	GND	
8	N.C.		21	N.C.	Non Connection
9	N.C.	Non Connection	22	MUTE	Mute pin
10	N.C.		23	N.C.	Non Connection
11	N.C.		24	OPIN +	OP amp. non-inverting input pin
12	DROUT -	Driver negative output pin (for input)	25	OPIN -	OP amp. inverting input pin
13	DROUT +	Driver positive output pin (for input)			

## ■ LC78650E-P (DVDM ASSY : IC201)(DVL-909 only)

- Servo DSP LSI

- Block Diagram



## ● Pin Function

No.	Pin Name	I/O	Function
1	PP5/SYNC	I/O	General-purpose port input/output / DVD sync. signal input
2	LEFM	O	Output the state that cut and out a signal which was binary-stated value EFM/EFM + with PCK.
3	EFMOUT	O	Output the state that was binary-stated value EFM/EFM + .
4	C2F	O	C2 flag output
5	ROMXA	O	ROMXA data output
6	ROMCK	O	Shift clock output for ROMXA data output
7	LRSY	O	L/R clock output for ROMXA data output
8	DVDD2	-	5V power supply
9	VSS	-	GND
10	XTALOUT	O	External system clock output
11	FSX	O	CD 1 frame sync. signal output
12	SBCK	I	Subcode reading out clock input
13	SFSY	O	Frame sync. signal output of subcode
14	PW	O	Subcode P, Q, R, S, T, U, V and W output
15	VSS	-	GND for oscillation circuit
16	XIN	I	Connect a crystal resonator (16.9344MHz)
17	XOUT	O	Connect a crystal resonator
18	DVDD1	-	3.3V power supply of the oscillation circuit
19	EMPH	O	Monitor the deemphasis
20	SBSY	O	Sync. signal output of the subcode block
21	DOUT	O	Output for the digital audio I/F
22	EFLG	O	Error correction state monitor of the error correction C1 and C2
23	FSEQ	O	Detection monitor of the CD/DVD frame sync. signal
24	FAST	O	Playback speed monitor
25	V_PB	O	Monitor output of the rough servo/CLV control
26	DRF	O	In focus monitor
27	TEST3	I	Test input 3
28	TES	I	Tracking error signal input
29	TEST2	I	Test input 2
30	JITT	I	Jitter quantity detecting signal input of EFM/EFM + PLL
31	TILTE	I	Tilt error signal input
32	RF_PH	I	RF peak hold signal input
33	RF_BH	I	RF bottom hold signal input
34	TE	I	Tracking error signal input
35	FE	I	Focus error signal input
36	SLCIST1	-	Current setting pin 1 of the constant current charge pump for SLC
37	SLCIST2	-	Current setting pin 2 of the constant current charge pump for SLC
38	SLCO1	-	Control output 1 for SLC
39	SLCO2	-	Control output 2 for SLC
40	TEST1	I	Test input 1
41	EFMIN	I	EFM/EFM + input
42	AVDD	-	5V power supply of A/D and D/A for servo
43	AVSS	-	GND of A/D and D/A for servo
44	AUXO	O	DA auxiliary output
45	TILTDO	O	Tilt control signal output
46	TBAL	O	Tracking balance control signal output
47	SLDO	O	Sled control signal output
48	SPDO	O	Spindle control signal output
49	FDO	O	Focus control signal output
50	TDO	O	Tracking control signal output

No.	Pin Name	I/O	Function
51	VREF	-	Reference level of A/D and D/A for servo
52	TEST4	I	Test input 4
53	HFL	O	Track detection signal output
54	LASER	O	For laser ON/OFF control
55	DVD_CDB	O	Disc discrimination result output
56	LCDCTL	O	Pickup liquid shutter control signal output
57	PP6/FG	I/O	General-purpose port input/output / FG signal input
58	PP7/EVNT	I/O	General-purpose port input/output / Event counter input
59	RESB	I	Reset input
60	CSB	I	Chip select input
61	RDB	I	Internal state reading signal input
62	WRB	I	Command / data writing signal input
63	DVDD2	-	5V power supply
64	VSS	-	GND
65	P0	I/O	Command / data input/output
66	P1		
67	P2		
68	P3		
69	P4		
70	P5		
71	P6		
72	P7		
73	VSS	-	GND
74	DVDD1	-	3.3V power supply for internal logic
75	BUSYB	O	Busy signal output of command process
76	SQOUT	O	Serial output of subcode Q
77	CQCKB	I	Data read-out shift clock input of subcode Q
78	RWC	I	Serial output update permission input of subcode Q
79	WRQ	O	Read out ready monitor of subcode Q
80	VSS	-	PLL GND for internal system clock
81	VRPFR	-	VCO oscillation range setting of PLL for internal system clock
82	VCOC	-	Connect a PLL filter for internal system clock
83	VPDO	-	
84	DVDD2	-	PLL 5V power supply for internal system clock
85	PDO1	-	PLL filter connection pin 1 for EFM/EFM + playback
86	PDO2	-	PLL filter connection pin 2 for EFM/EFM + playback
87	PDO3	-	PLL filter connection pin 3 for EFM/EFM + playback
88	VSS	-	PLL GND for EFM/EFM + playback
89	PCKIST1	-	Current setting 1 of PLL constant current charge pump for EFM/EFM + playback
90	PCKIST2	-	Current setting 2 of PLL constant current charge pump for EFM/EFM + playback
91	DVDD2	-	PLL 5V power supply for EFM/EFM + playback
92	DVDFR	-	VCO oscillation range setting of PLL for EFM + playback
93	CDFR	-	VCO oscillation range setting of PLL for EFM playback
94	JV	O	Jitter monitor of PLL clock for EFM/EFM + playback
95	PCK	O	Bit clock output for EFM/EFM + playback
96	PP0	I/O	General-purpose port input/output
97	PP1		
98	PP2		
99	PP3		
100	PP4		

## ■ PD4889A (DVDM ASSY : IC501)

- Mechanism Control IC

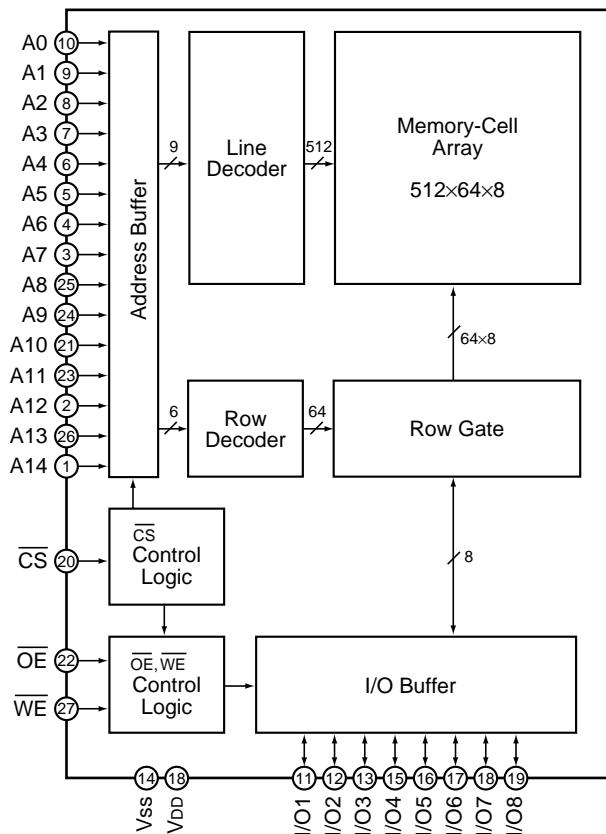
### • Pin Function

No.	Pin Name	I/O	Function	No.	Pin Name	I/O	Function
1	LODDRV	I/O	Loading motor drive output	33	XDSPRST	-	Reset pulse for servo DSP "L"
2	DVD/XCD	O	Clock switch H : DVD , L : CD	34	ASTB	O	Address strobe of multiplexed address/data bus "H"
3	AGOFF	O	Turn AGC of RF IC to OFF for "H"	35	XRST	I	CPU reset input "L"
4	EFLG	I	Count data input of error rate Measureable by using timer 1 and 2.	36	SBSY	INT	Subcode frame sync. input (H : S0+S1 period)
5	FSX	I	Error rate count area input (EFM frame sync.) H : C1 , L : C2	37	SHAKE	INT	Communication handshake of CLD mechanism controller "L" (DVL-909 only)
6	P35/PCL	-	Not used (pull down)	38	XABUSY	INT	DSP auto sequence busy input "L"
7	XTOFF	I/O	High impedance (input) at DEFECT ON "L" output at DEFECT OFF	39	XIRQ2	INT	LSI-11 interrupt input "L"
8	XCBUSY	I	DVD command reception is possible "L"	40	VDD	-	Power supply pin
9	VSS	-	GND	41	X2	-	Connect a ceramic resonator
10	MAD0	I/O	External address / data bus	42	X1	-	
11	MAD1			43	IC (Vpp)	-	GND
12	MAD2			44	XT2	-	Not used
13	MAD3			45	DVDPPK	I	Park position detection of compatible DVD pickup "L" (DVL-909 only)
14	MAD4			46	AVss	-	GND
15	MAD5			47	LODPOS	I	Loading and clamp position SW input
16	MAD6			48	SLDPOS	I	Slider position SW input
17	MAD7			49	DORPOS	I	Panel position SW input (DV-S9 only)
18	MA8	O	External address bus	50	XCURDET	I	Acutuator over-current detection input (former TRDLMT) "L" Servo OFF for 300 ms.
19	MA9			51	DR/XLD	O	Panel and loading switch of PWM output Panel : H , loading : L (DV-S9 only)
20	MA10			52	MON	O	Spindle motor ON output "H"
21	MA11			53	XCD2X	O	Not used
22	MA12			54	OEICG	O	"H" : OEIC gain up to 6dB
23	MA13			55	AVDD	-	Power supply pin
24	VSS	-	GND	56	AVREF	-	Reference power supply pin
25	MA14	O	External address bus	57	P_ERR	O	Not used
26	MA15			58	P21/SO1	-	Not used (pull down)
27	DRF	I	(FOK) Focus OK input	59	P22/XSK1	-	Not used (pull down)
28	V_PB	I	(LOCK) EFM servo lock signal "H"/"L"= rough servo / phase servo	60	XCSB	O	DSP parallel command setting output "L"
29	P62	-	Not used (pull down)	61	CLD	O	CLD circuit block switch (DVL-909 only)
30	WRQ	I	Readable flag of subcode Q	62	LDSO	I	Inputs serial communication output of CLD mechanism controller (DVL-909 only)
31	XRD	O	CPU read pulse "L"	63	LDSI	O	Outputs serial communication input of CLD mechanism controller (DVL-909 only)
32	XWR	O	CPU write pulse "L"	64	LDSCK	I	Inputs serial communication clock output of CLD mechanism controller (DVL-909 only)

## ■ SRM2B256SLMX70 (DVDM ASSY : IC502)

- 256 K SRAM (For Mechanism Control IC)

- Block Diagram



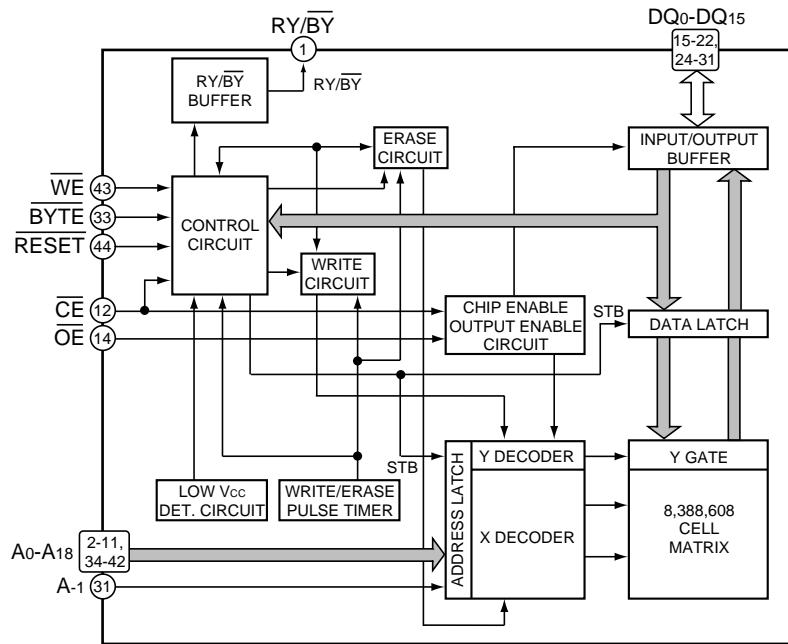
- Pin Function

No.	Pin Name	Function	No.	Pin Name	Function
1	A14	Address input	15	I/O4	Data input/output
2	A12		16	I/O5	
3	A7		17	I/O6	
4	A6		18	I/O7	
5	A5		19	I/O8	
6	A4		20	CS	Chip select
7	A3		21	A10	Address input
8	A2		22	OE	Output enable
9	A1		23	A11	Address input
10	A0		24	A9	
11	I/O1	Data input/output	25	A8	Address input
12	I/O2		26	A13	
13	I/O3		27	WE	Write enable
14	VSS	GND (0V)	28	VDD	Power supply (2.7 to 5.5V)

## ■ VYW1536 (DVDM ASSY : IC603)(DV-505 and DVL-909 only)

- Flash ROM

- Block Diagram



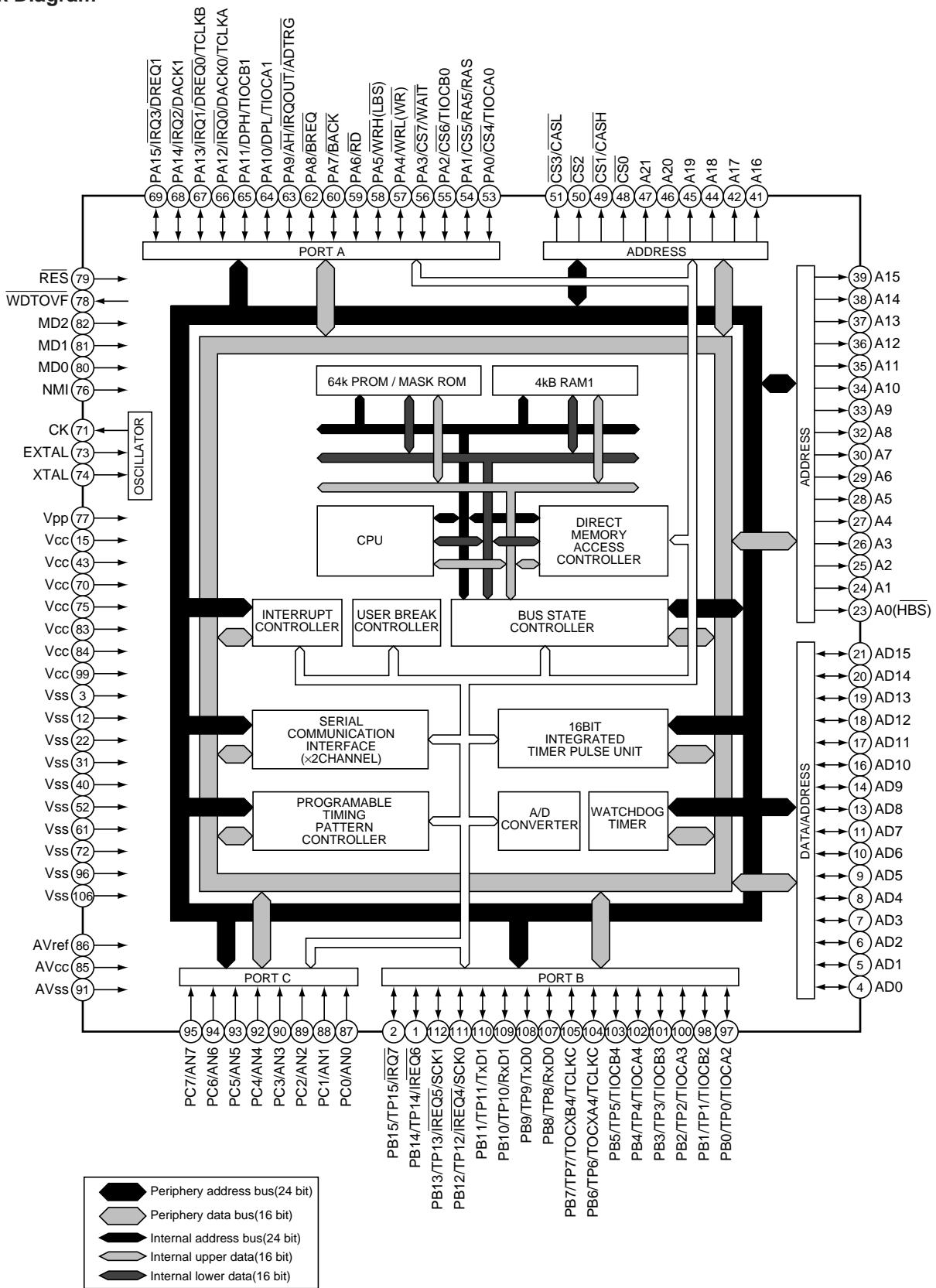
- Pin Function

No.	Pin Name	Function	No.	Pin Name	Function
1	RY/BY	Ready / Busy output	23	VCC	Power supply (+5.0V ± 10% or ± 5%)
2	A18	Address input	24	DQ4	Data input / output
3	A17		25	DQ12	
4	A7		26	DQ5	
5	A6		27	DQ13	
6	A5		28	DQ6	
7	A4		29	DQ14	
8	A3		30	DQ7	
9	A2		31	DQ15/A-1	Data input/output / address input
10	A1		32	VSS	Ground
11	A0		33	BYTE	Switch the 8 bit and 16 bit modes
12	CE	Chip enable	34	A16	Address input
13	VSS	Ground	35	A15	
14	OE	Output enable	36	A14	
15	DQ0	Data input/output	37	A13	
16	DQ8		38	A12	
17	DQ1		39	A11	
18	DQ9		40	A10	
19	DQ2		41	A9	
20	DQ10		42	A8	
21	DQ3		43	WE	Write enable
22	DQ11		44	RESET	Hardware reset

## ■ PD3381A (DVDM ASSY : IC601)

- System Control CPU

- Block Diagram



# DV-505, DVL-909, DV-S9

## ● Pin Function

No.	Pin Name	I/O	Function
1	PB14/TP14/IRQ6	I/O	16 bit input/output (port B) / Timing pattern output / Interruption request
2	PB15/TP15/IRQ7		
3	VSS	I	Ground
4	AD0		
5	AD1		
6	AD2		
7	AD3		
8	AD4		
9	AD5		
10	AD6		
11	AD7		
12	VSS	I	Ground
13	AD8		
14	AD9		
15	VCC	I	Power supply
16	AD10		
17	AD11		
18	AD12		
19	AD13		
20	AD14		
21	AD15		
22	VSS	I	Ground
23	A0 (HBS)	O	Address bus output (upper byte strobe signal)
24	A1		
25	A2		
26	A3		
27	A4		
28	A5		
29	A6		
30	A7		
31	VSS	I	Ground
32	A8		
33	A9		
34	A10		
35	A11		
36	A12		
37	A13		
38	A14		
39	A15		
40	VSS	I	Ground
41	A16		
42	A17		
43	VCC	I	Power supply

No.	Pin Name	I/O	Function
44	A18	O	Address bus output
45	A19		
46	A20		
47	A21		
48	<u>CS0</u>	O	Chip select signal
49	<u>CS1/CASH</u>	O	Chip select signal / Column address strobe timing signal on the upper side of DRAM
50	<u>CS2</u>	O	Chip select signal
51	<u>CS3/CASL</u>	O	Chip select signal / Column address strobe timing signal on the lower side of DRAM
52	VSS	I	Ground
53	PA0/CS4/TIOCA0	I/O	16 bit input/output (port A) / Chip select signal / ITU input capture input/ITU output compare output (channel 0)
54	PA1/CS5/RAS	I/O	16 bit input/output (port A) / Chip select signal / Low address strobe timing signal of DRAM
55	PA2/CS6/TIOCB0	I/O	16 bit input/output (port A) / Chip select signal / ITU input capture input/ITU output compare output (channel 0)
56	PA3/CS7/WAIT	I/O	16 bit input/output (port A) / Chip select signal / Wait input for bus cycle
57	PA4/WRL (WR)	I/O	16 bit input/output (port A) / External lower 8 bit writing (output at writing)
58	PA5/WRH (LBS)	I/O	16 bit input/output (port A) / External upper 8 bit writing (lower byte strobe signal)
59	PA6/RD	I/O	16 bit input/output (port A) / External reading out
60	PA7/BACK	I/O	16 bit input/output (port A) / Bus claim request acknowledge
61	VSS	I	Ground
62	PA8/BREQ	I/O	16 bit input/output (port A) / Bus claim request
63	PA9/AH/IRQOUT/ADTRG	I/O	16 bit input/output (port A) / Address hold timing signal / Interruption request output at slave / A/D conversion trigger input
64	PA10/DPL/TIOCA1	I/O	16 bit input/output (port A) / Data bus parity on the lower side / ITU input capture input/ITU output compare output (channel 1)
65	PA11/DPH/TIOCB1	I/O	16 bit input/output (port A) / Data bus parity on the upper side / ITU input capture input/ITU output compare output (channel 1)
66	PA12/IRQ0/DACK0/TCLKA	I/O	16 bit input/output (port A) / Interruption request / DMA transfer request reception (channel 0) / ITU timer clock input
67	PA13/IRQ1/DREQ0/TCLKB	I/O	16 bit input/output (port A) / Interruption request / DMA transfer request (channel 0) / ITU timer clock input
68	PA14/IRQ2/DACK1	I/O	16 bit input/output (port A) / Interruption request / DMA transfer request reception (channel 1)
69	PA15/IRQ3/DREQ1	I/O	16 bit input/output (port A) / Interruption request / DMA transfer request (channel 1)
70	VCC	I	Power supply
71	CK	O	System clock output
72	VSS	I	Ground
73	EXTAL	I	Crystal oscillator input      External clock input
74	XTAL	I	Crystal oscillator input
75	VCC	I	Power supply
76	NMI	I	Non-maskable interruption input
77	VPP	I	Power supply of PROM program
78	<u>WDTOVF</u>	O	Watchdog timer over-flow output
79	<u>RES</u>	I	Reset input
80	MD0	I	Mode setting pins
81	MD1		
82	MD2		
83	VCC	I	Power supply
84	VCC		

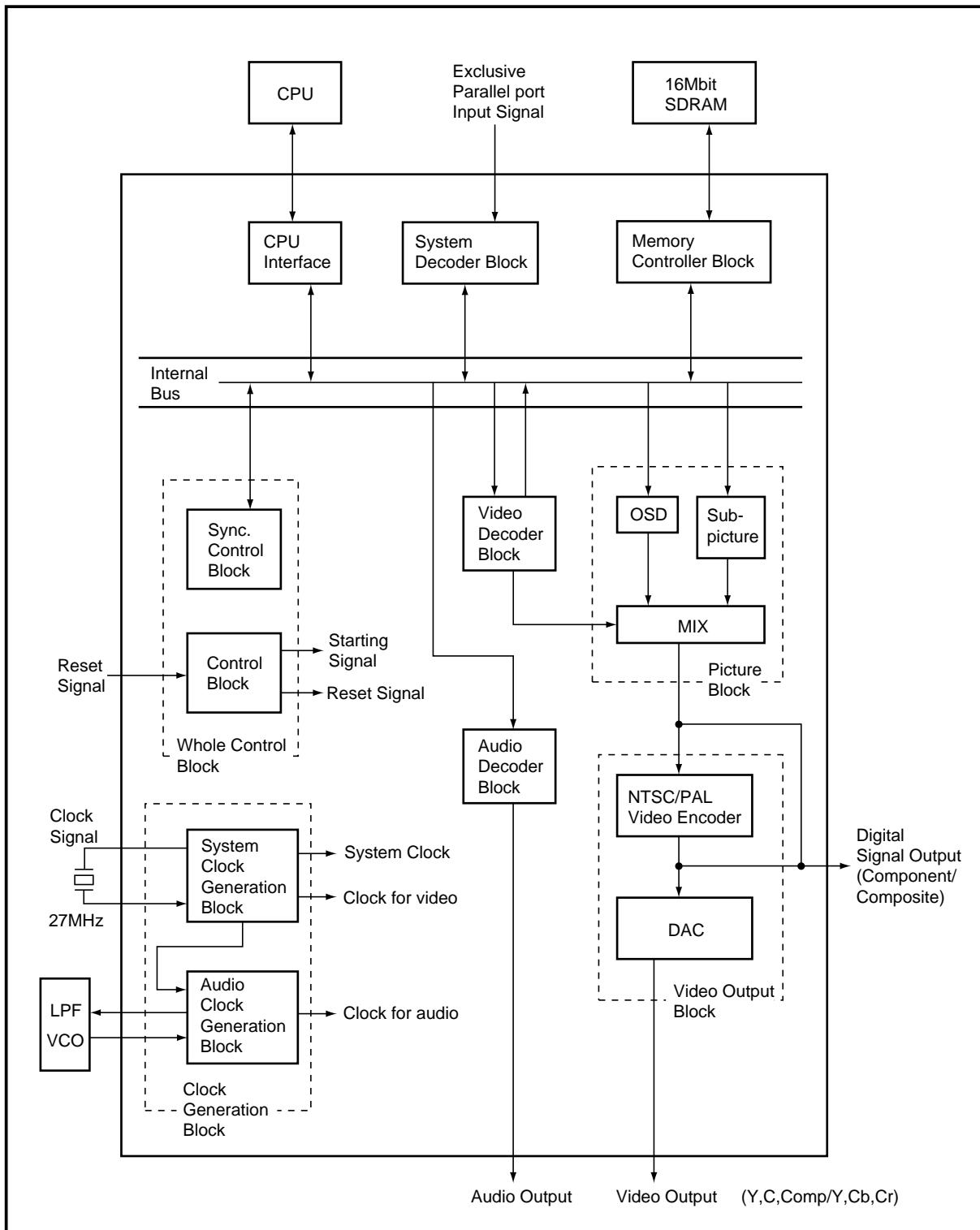
# DV-505, DVL-909, DV-S9

No.	Pin Name	I/O	Function
85	AVCC	I	Analog power supply
86	AVREF	I	Analog reference power supply
87	PC0/AN0	I	8 bit input (port C) / Analog signal input
88	PC1/AN1		
89	PC2/AN2		
90	PC3/AN3		
91	AVSS	I	Analog Ground
92	PC4/AN4	I	8 bit input (port C) / Analog signal input
93	PC5/AN5		
94	PC6/AN6		
95	PC7/AN7		
96	VSS	I	Ground
97	PB0/TP0/TIOCA2	I/O	16 bit input/output (port B) / Timing pattern output / ITU input capture input/ITU output compare output (channel 2)
98	PB1/TP1/TIOCB2		
99	VCC	I	Power supply
100	PB2/TP2/TIOCA3	I/O	16 bit input/output (port B) / Timing pattern output / ITU input capture input/ITU output compare output (channel 3)
101	PB3/TP3/TIOCB3		
102	PB4/TP4/TIOCA4	I/O	16 bit input/output (port B) / Timing pattern output / ITU input capture input/ITU output compare output (channel 4)
103	PB5/TP5/TIOCB4		
104	PB6/TP6/TOCXA4/TCLKC	I/O	16 bit input/output (port B) / Timing pattern output / ITU output compare output (channel 4) / ITU timer clock input
105	PB7/TP7/TOCXB4/TCLKD		
106	VSS	I	Ground
107	PB8/TP8/RXD0	I/O	16 bit input/output (port B) / Timing pattern output / Receive data input (channel 0)
108	PB9/TP9/TXD0	I/O	16 bit input/output (port B) / Timing pattern output / Transmission data output (channel 0)
109	PB10/TP10/RXD1	I/O	16 bit input/output (port B) / Timing pattern output / Receive data input (channel 1)
110	PB11/TP11/TXD1	I/O	16 bit input/output (port B) / Timing pattern output / Transmission data output (channel 1)
111	PB12/TP12/IRQ4/SCK0	I/O	16 bit input/output (port B) / Timing pattern output / Interruption request / Serial clock input/output (channel 0)
112	PB13/TP13/IRQ5/SCK1	I/O	16 bit input/output (port B) / Timing pattern output / Interruption request / Serial clock input/output (channel 1)

## ■ MB86371 (DVDM ASSY : IC801)

- MPEG2 Decoder LSI For DVD

- Block Diagram



● Pin Function

No.	Pin Name	I/O	Function	No.	Pin Name	I/O	Function
1	CLKSEL	I	ON/OFF signal of PLL ("H" : ON, "L" : OFF)	27	VDD	-	3.3V power supply
2	DIGCPN7	O	Digital component signal output (MSB) Digital Y signal output (9-bit) (MSB)	28	DIGCOMP4	O	Digital composite signal output Digital C signal output
3	VSS	-	GND	29	DIGCOMP3		
4	DIGCPN6	O	Digital component signal output Digital Y signal output (9-bit)	30	DIGCOMP2		
5	DIGCPN5			31	DIGCOMP1		
6	DIGCPN4			32	DIGCOMP0		
7	DIGCPN3			33	DACK	O	27 MHz clock output
8	DIGCPN2			34	N.C.	-	Non connection
9	DIGCPN1			35	VSSA3	-	GND (D/A converter)
10	VDD	-	3.3V power supply	36	ANAC	O	Analog color (C) output signal
11	DIGCPN0	O	Digital component signal output (LSB) Digital Y signal output (9-bit) (LSB)	37	VDDA3	-	3.3V power supply (for built-in D/A converter only)
12	RBSEL	O	Cb and Cr discrimination signal at the digital component signal output. LSB at the digital Y signal output.	38	VSSA2	-	GND (D/A converter)
13	XHS	O	Horizontal sync. output signal	39	ANAY	O	Analog luminance (Y) output signal
14	XVS	O	Vertical sync. output signal	40	VDDA2	-	3.3V power supply (for built-in D/A converter only)
15	VSS	-	GND	41	VREF	I	Reference voltage for D/A converter
16	XRESET	I	LSI reset signal	42	VRO	O	Internal current setting pin of D/A converter
17	XLDCSYNC	I	External sync. signal input (LD mode)	43	N.C.	-	Non connection
18	KEY	O	KEY signal for LD and OSD overlay (LD mode)	44	VSSA1	-	GND (D/A converter)
19	PD	O	Phase comparison result output signal of horizontal sync. (LD mode)	45	ANACOMP	O	Analog composite output signal
20	VFLD	O	Field discrimination signal at the digital signal output H : even field L : odd field	46	VDDA1	-	3.3V power supply (for built-in D/A converter only)
21	DIGCOMP9	O	Digital composite signal output (MSB) Digital C signal output (MSB)	47	BF	O	Burst flag signal
22	DIGCOMP8			48	XBLK	O	H/V composite blanking signal
23	DIGCOMP7			49	N.C.	-	Non connection
24	DIGCOMP6			50	VSS	-	GND
25	DIGCOMP5			51	TEST0	-	Normally, set to "open".
26	VSS	-	GND	52	TEST1	-	"L" status normally

No.	Pin Name	I/O	Function	No.	Pin Name	I/O	Function
53	DAIIN	I	Digital data input of external input (SPDIF)	92	HADRS10	I	CPU address bus signal (MSB)
54	CDDATA	I	Audio data input of external input (correspond to CD)	93	HADRS9		
55	CDLR	I	Data channel clock input of external input (correspond to CD)	94	HADRS8	I	CPU address bus signal
56	CDBCK	I	Data clock input of external input (correspond to CD)	95	HADRS7		
57	AODATA3			96	VSS	-	GND
58	AODATA2	O	Audio decode data	97	VDD	-	3.3V power supply
59	AODATA1			98	HADRS6		
60	VSS	-	GND	99	HADRS5		CPU address bus signal
61	VDD	-	3.3V power supply	100	HADRS4	I	
62	AODATA0	O	Audio decode data	101	HADRS3		
63	AOPCM	O	Digital audio interface output (compression data)	102	HADRS2		CPU address bus signal (LSB)
64	AODAI	O	Digital audio interface output (decode data)	103	HDATA15		CPU data bus signal (MSB)
65	LRCK	O	Data channel clock for D/A and digital filter	104	HDATA14		
66	AOMCK	O	Master clock for D/A and digital filter	105	HDATA13		CPU data bus signal
67	BCK	O	Bit clock for D/A and digital filter	106	HDATA12		
68	ICED1			107	VSS	-	GND
69	ICED0			108	HDATA11		
70	ICEBRK			109	HDATA10		
71	XDSPRST			110	HDATA9		
72	VSS	-	GND	111	HDATA8		CPU data bus signal
73	N.C.	-	Non connection	112	HDATA7		
74	TEST2			113	HDATA6		
75	TEST3			114	VDD	-	3.3V power supply
76	TEST4			115	HDATA5		
77	TEST5			116	HDATA4		
78	SD7	I	Parallel data input	117	HDATA3		CPU data bus signal
79	VDD	-	3.3V power supply	118	HDATA2		
80	SD6			119	VSS	-	GND
81	SD5			120	HDATA1		CPU data bus signal
82	SD4			121	HDATA0		CPU data bus signal (LSB)
83	SD3			122	BUSSEL	I	Bus width selection signal (0 : 8-bit bus, 1 : 16-bit bus)
84	SD2			123	XOSDACK	I	OSD data acknowledge signal
85	VSS	-	GND	124	XOSDREQ	O	OSD data request signal
86	SD1			125	HCPUSEL1		
87	SD0	I	Parallel data input	126	HCPUSEL0	I	CPU selection signal (00 :SPARC, 01 :86 system, 10 :68 system, 11 :Reserve)
88	XERR	I	Error input signal	127	XINT3		
89	XSACK	I	Acknowledge signal	128	XINT2	O	Interrupt request signal to the CPU
90	XTEST	I	Set to "H" at normal use	129	XINT1		
91	SREQ	O	Data request signal	130	VSS	-	GND

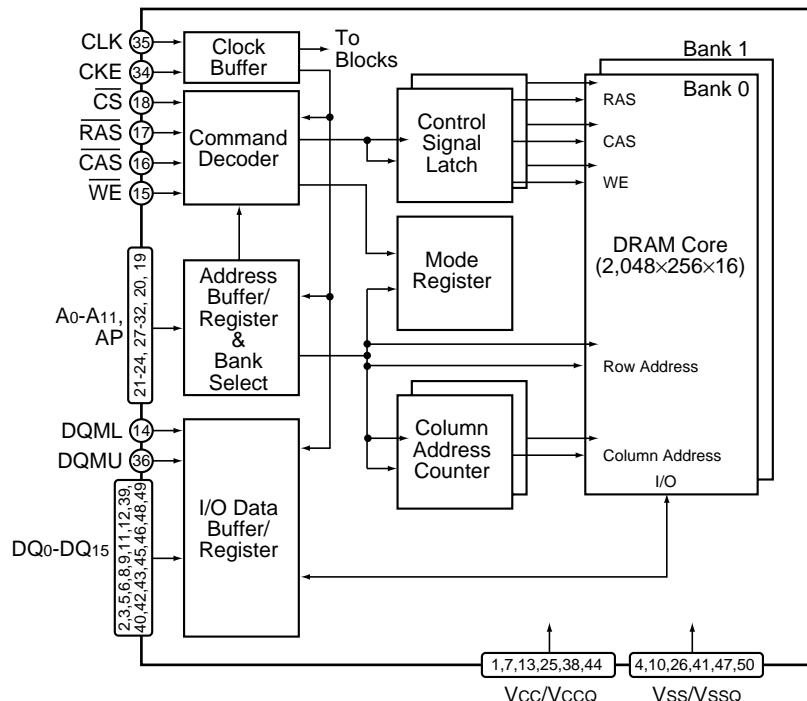
# DV-505, DVL-909, DV-S9

No.	Pin Name	I/O	Function	No.	Pin Name	I/O	Function
131	VDD	-	3.3V power supply	170	XMDRCAS	O	CAS signal for SDRAM
132	XINT0	O	Interrupt request signal to CPU	171	XMDRDQM1	O	Input mask / output enable signal for SDRAM
133	XEXTRDY	O	SPARC, 68 system : Ready signal to CPU 86 system : Acknowledge (ACK) signal to CPU	172	VSS	-	GND
134	HRW	I	CPU read / write signal	173	XMDRWE	O	Write enable signal for SDRAM
135	HCLKIN	I	Host clock input	174	XMDRDQM0	O	Input mask / output enable signal for SDRAM
136	XHCS	I	LSI chip select signal	175	MDRDATA8	I/O	Data bus signal for SDRAM
137	XHAS	I	SPARC, 68 system : CPU address strobe 86 system : CPU address status	176	VSS	-	GND
138	XHBE3	I	CPU byte enable signal	177	MDRDATA7	I/O	Data bus signal for SDRAM
139	XHBE2			178	MDRDATA9		
140	XHBE1			179	MDRDATA6		
141	XHBE0			180	MDRDATA10		
142	VSS	-	GND	181	MDRDATA5		
143	MDRADR4	O	Address signal for SDRAM	182	VSS	-	GND
144	MDRADR3			183	VDD	-	3.3V power supply
145	MDRADR5			184	MDRDATA11	I/O	Data bus signal for SDRAM
146	MDRADR2			185	MDRDATA4		
147	VDD	-	3.3V power supply	186	MDRDATA12		
148	VSS	-	GND	187	MDRDATA3		
149	MDRADR6	O	Address signal for SDRAM	188	MDRDATA13		
150	MDRADR1			189	VSS	-	GND
151	MDRADR7			190	MDRDATA2	I/O	Data bus signal for SDRAM
152	MDRADR0			191	MDRDATA14		
153	MDRADR8			192	MDRDATA1		
154	VSS	-	GND	193	MDRDATA15		Data bus signal for SDRAM (MSB)
155	TEST6	-	"L" status normally	194	MDRDATA0	I/O	Data bus signal for SDRAM (LSB)
156	TEST7			195	VSS	-	GND
157	TEST8			196	N.C.	-	Non connection
158	TEST9			197	ICK27M	I	System clock input
159	MDRADR10	O	Address signal for SDRAM	198	VSS	-	GND
160	MDRADR9			199	OCK27M	O	System clock output
161	MDRADR11			200	VSSA(VCO)	-	GND (for VCO only)
162	XMDRCS	O	Chip select signal for SDRAM	201	VDDA(VCO)	-	3.3V power supply (for VCO only)
163	MDRCKE	O	Clock enable signal for SDRAM	202	ILPF	O	PLL block inverter output for audio
164	VSS	-	GND	203	MLPF	I	PLL block inverter input for audio
165	VDD	-	3.3V power supply	204	OLPF	O	Phase detector output for audio
166	XMDRRAS	O	RAS signal for SDRAM	205	OVCO	I	VCO input for audio clock
167	MDRCLK	O	Clock output signal for SDRAM	206	VSS	-	GND
168	VSS	-	GND	207	XPLLRST	I	PLL section reset signal
169	MDRCLKIN	I	Clock input signal for SDRAM	208	XSYNCRST	I	SYNC reset signal

## ■ MB811171622A-100FN (DVDM ASSY : IC802)

- Code Buffer (16M bit SDRAM)

- Block Diagram



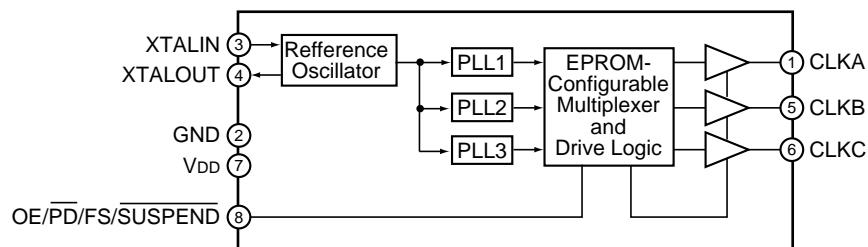
- Pin Function

No.	Pin Name	Function	No.	Pin Name	Function
1	VCC	Power supply (+ 3.3V)	26	VSS	Ground
2	DQ0	Data input/output	27	A4	
3	DQ1		28	A5	
4	VSSQ	Ground	29	A6	Address input Row : A0 to A10 , Column : A0 to A7
5	DQ2		30	A7	
6	DQ3	Data input/output	31	A8	
7	VCCQ	Power supply (+ 3.3V)	32	A9	
8	DQ4		33	DU	Don't use (use for open)
9	DQ5	Data input/output	34	CKE	Clock enable
10	VSSQ	Ground	35	CLK	Clock input
11	DQ6		36	DQMU	Input mask / Output enable
12	DQ7	Data input/output	37	DU	Don't use (use for open)
13	VCCQ	Power supply (+ 3.3V)	38	VCCQ	Power supply (+ 3.3V)
14	DQML	Input mask / Output enable	39	DQ8	Data input/output
15	WE	Write enable	40	DQ9	
16	CAS	Column address strobe	41	VSSQ	Ground
17	RAS	Row address strobe	42	DQ10	Data input/output
18	CS	Chip select	43	DQ11	
19	A11 (BA)	Bank select	44	VCCQ	Power supply (+ 3.3V)
20	A10/AP	Address input Row : A0 to A10 , Column : A0 to A7 / Auto pre-charge enable	45	DQ12	Data input/output
21	A0		46	DQ13	
22	A1	Address input Row : A0 to A10 , Column : A0 to A7	47	VSSQ	Ground
23	A2		48	DQ14	Data input/output
24	A3		49	DQ15	
25	VCC	Power supply (+ 3.3V)	50	VSS	Ground

## ■ CY2081SL-611 (DVDM ASSY : IC813)

- Clock Generate IC

- Block Diagram



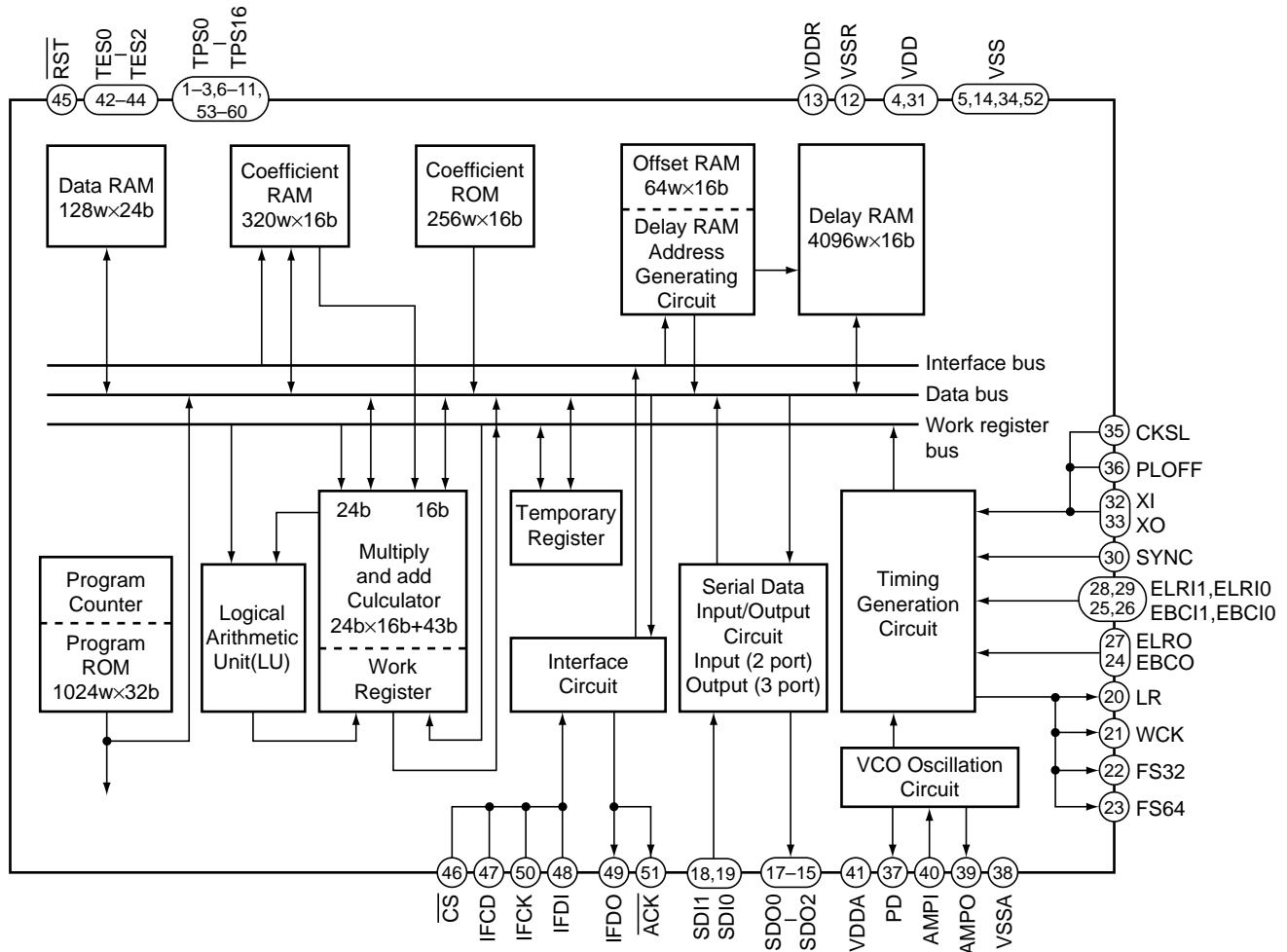
- Pin Function

No.	Pin Name	Function
1	CLKA	Configurable clock output
2	GND	Ground
3	XTALIN	Reference crystal input or external reference clock input
4	XTALOUT	Reference crystal feedback
5	CLKB	Configurable clock output
6	CLKC	Configurable clock output
7	VDD	Voltage supply
8	OE/PD/FS/SUSPEND	Output control pin Either active-High output enable, active-Low power down, CLKA frequency select, or active-Low suspend input

## ■ PD2058A ( DVDM ASSY : IC901 )(DV-505 and DVL-909 only)

- Digital Signal Processor For Audio

- Block Diagram



- Pin Function

No.	Pin Name	I/O	Function
1	TP8	O	Test data output pin Normally, use with open.
2	TP7		
3	TP6		
4	VDD	-	Power supply pin
5	VSS	-	Ground pin
6	TP5	O	
7	TP4		
8	TP3		
9	TP2		
10	TP1		
11	TP0		

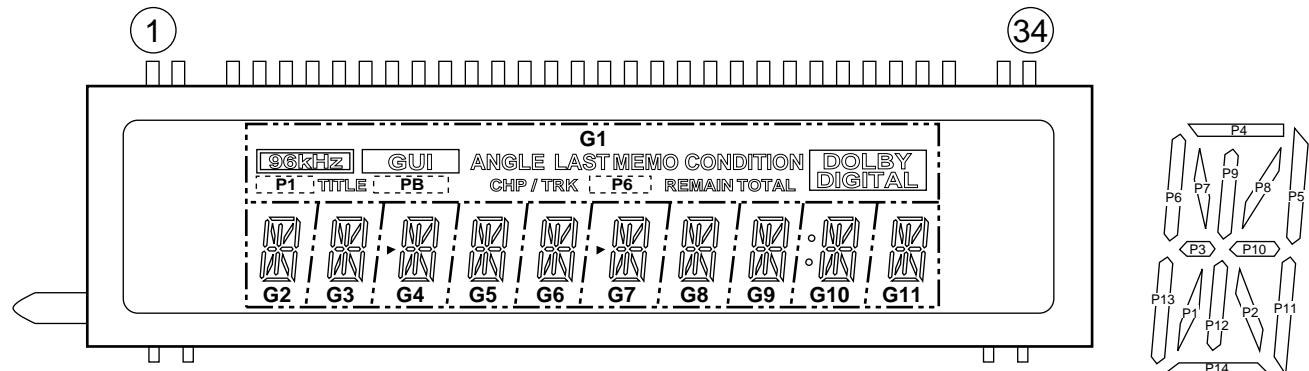
# DV-505, DVL-909, DV-S9

No.	Pin Name	I/O	Function
12	VSSR	-	Ground pin for internal delay RAM (DLRAM)
13	VDDR	-	Power supply pin for internal delay RAM (DLRAM)
14	VSS	-	Ground pin
15	SDO2	O	Serial data output pin Output data length is able to select the 24-bit or 16-bit by controlling the microprocessor.
16	SDO1		
17	SDO0		
18	SDI1	I	Serial data input pin Input data length is able to select the 24-bit or 16-bit by controlling the microprocessor.
19	SDI0		
20	LR	O	LR clock output pin (1 fs)
21	WCK	O	Word clock output pin (2 fs)
22	FS32	O	Bit clock output pin (32 fs)
23	FS64	O	Bit clock output pin (64 fs)
24	EBC0	I	Bit clock input pin Inputs shift clock for SDO0/1/2 data output.
25	EBCI1	I	Bit clock input pin Inputs shift clock for SDI0/1 data input. For SDI1 data input
26	EBCI0		For SDI0 data input
27	ELRO	I	LR clock input pin Inputs LR clock for SDO0/1/2 data output.
28	ELRI1	I	LR clock input pin Inputs LR clock for SDI0/1 data input. For SDI1 data input
29	ELRI0		For SDI0 data input
30	SYNC	I	Sync. signal input pin Turn the program counter into "0" forcibly by the edge of SYNC signal. Moreover, set the polarity by controlling the microprocessor.
31	VDD	-	Power supply pin
32	XI	I	Crystal oscillator connection pin / external clock input pin
33	XO	O	Crystal oscillator connection pin
34	VSS	-	Ground pin
35	CKSL	I	Oscillation clock switch pin L : correspond to 384 fs H : correspond to 512 fs
36	Ploff	I	X'tal oscillation mode / VCO oscillation mode switch pin L :built-in VCO oscillation mode H :X'tal oscillation mode
37	PD	O	Phase comparison data output pin
38	VSSA	-	Analog ground pin
39	AMPO	O	Amp. output pin for low-pass filter
40	AMPI	I	Amp. input pin for low-pass filter
41	VDDA	-	Analog power supply pin
42	TES0	I	Test pin
43	TES1		Normally, use for "H" or open.
44	TES2		
45	RST	I	Reset signal input pin
46	CS	I	Chip select signal input pin When CS is L active, data is able to transfer from the microprocessor.
47	IFCD	I	Command or data input mode selection pin from the microprocessor Recognize the command for "H" period and the data for "L" period.
48	IFDI	I	Microprocessor data input pin Receive the command and data by LSB first.
49	IFDO	O	Data output pin of data bus (DBUS) Transmit the data of data bus to the microprocessor by LSB first.
50	IFCK	I	Shift clock input pin for microprocessor data
51	ACK	O	Acknowledge signal output pin for microprocessor When parity of command and data is OK, outputs the acknowledge signal.
52	VSS	-	Ground pin
53	TP16	O	
54	TP15		
55	TP14		
56	TP13		
57	TP12		
58	TP11		
59	TP10		
60	TP9		Test data output pin Normally, use with open.

## 5. FL INFORMATION

### ■ VAW1046 (FLKB ASSY : V101)(DV-505 and DVL-909 only)

- FL DISPLAY



- ANODE AND GRID ASSIGNMENT

	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11
P1	P1	P1	P1	P1	P1	P1	P1	P1	P1	P1	P1
P2	ANGLE	P2									
P3	TITLE	P3									
P4	LAST MEMO	P4									
P5	CONDITION	P5									
P6	P6	P6	P6	P6	P6	P6	P6	P6	P6	P6	P6
P7	CHP/TRK	P7									
P8	P8	P8	P8	P8	P8	P8	P8	P8	P8	P8	P8
P9	REMAIN	P9									
P10	DOLBY DIGITAL	P10									
P11	GUI	P11									
P12	96kHz	P12									
P13		P13									
P14		P14									
P15	TOTAL			▷		▷			○		

- PIN ASSIGNMENT

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Assignment	F1	F1	NP	P15	P14	P13	P12	P11	P10	P9	P8	P7	P6	P5	P4	P3	P2

Pin No.	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
Assignment	P1	G11	G10	G9	G8	NL	NL	G7	G6	G5	G4	G3	G2	G1	NP	F2	F2

F1, F2 : Filament

G1~G11 : Grid

P1~P15 : Anode

NP : No Pin

NL : No Lead